

FIG. 1

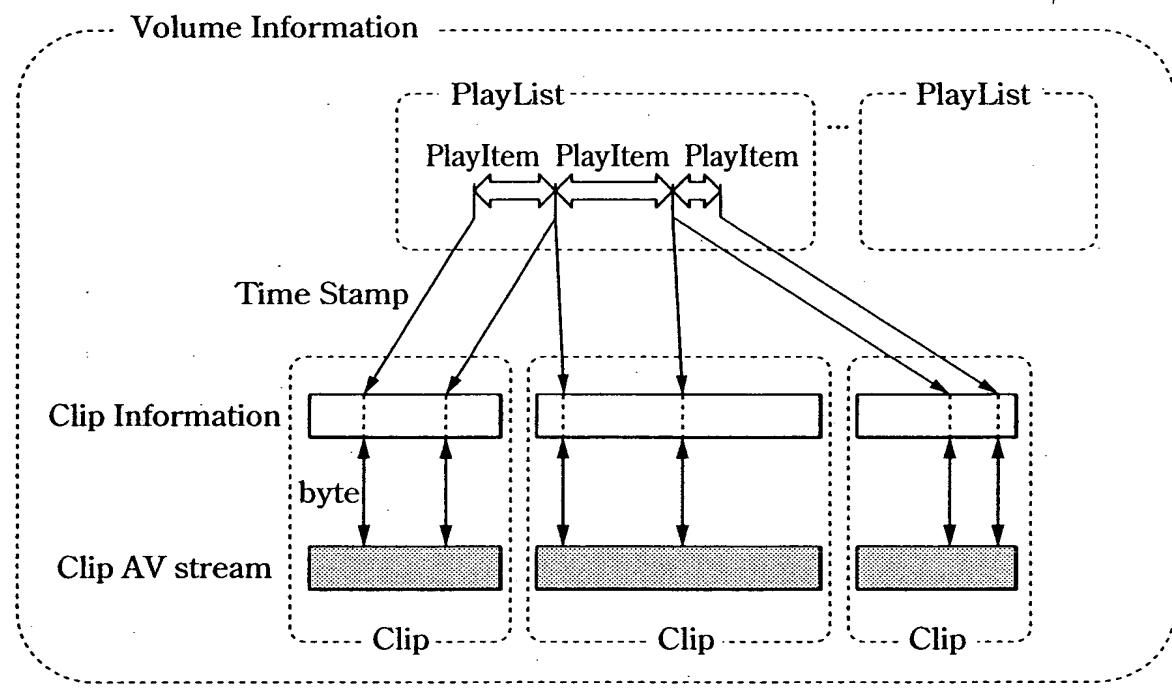


FIG.2

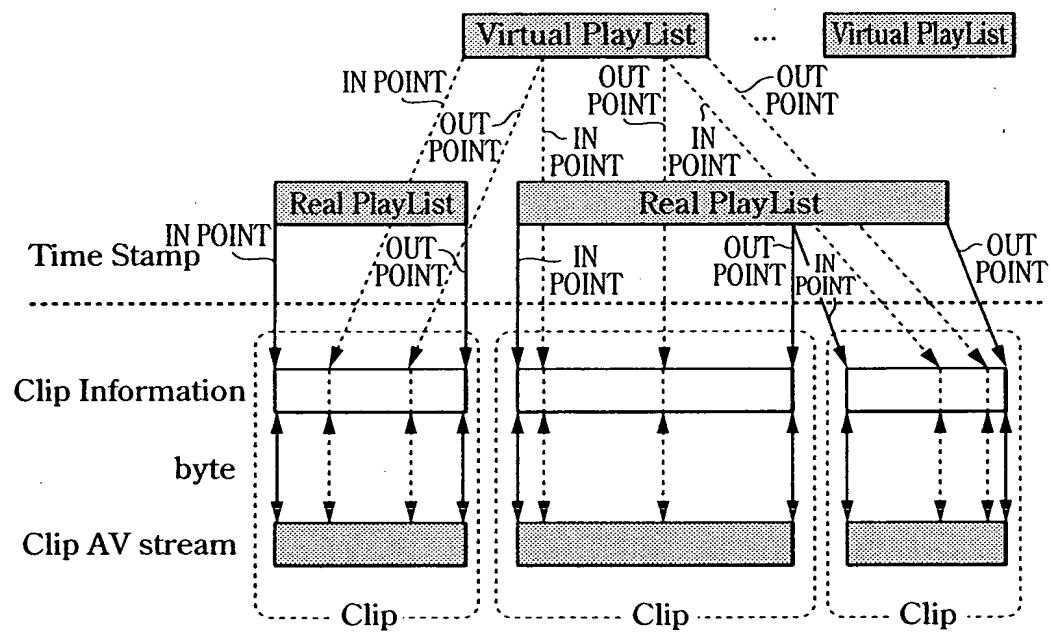


FIG.3

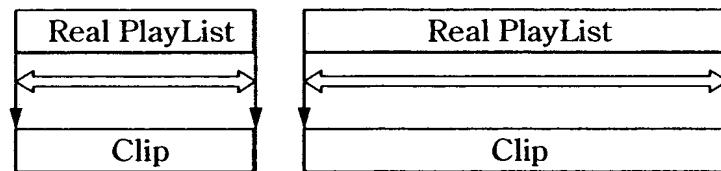


FIG.4A

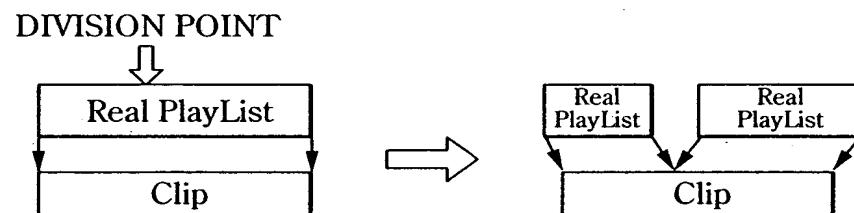


FIG.4B

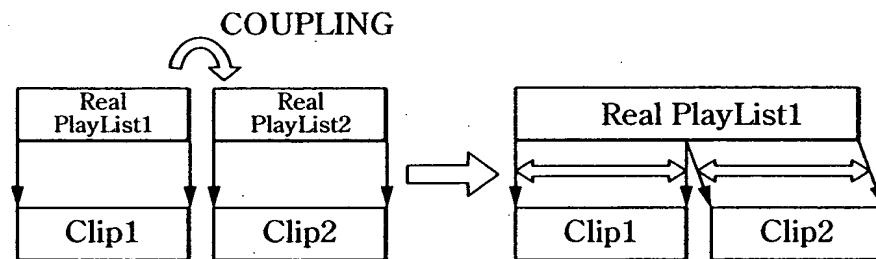


FIG.4C

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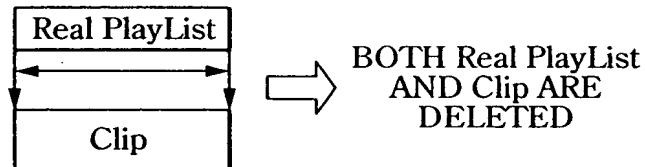


FIG.5A

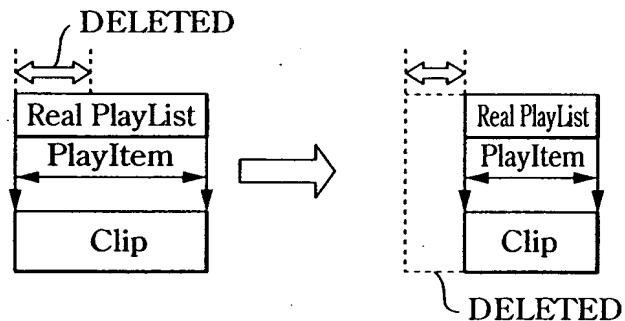


FIG.5B

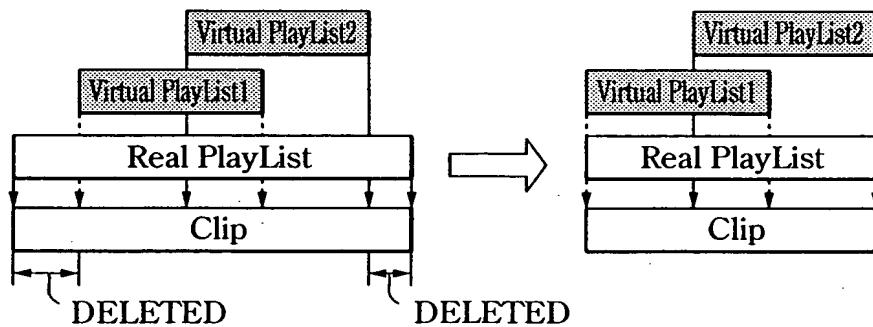


FIG.5C

FIG.6A

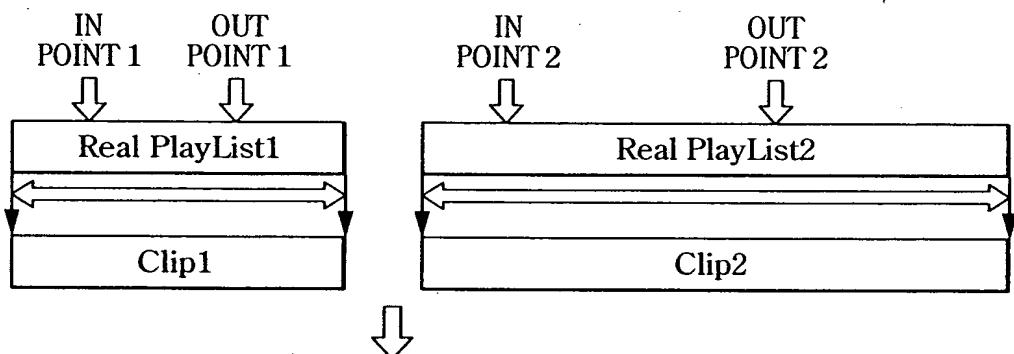
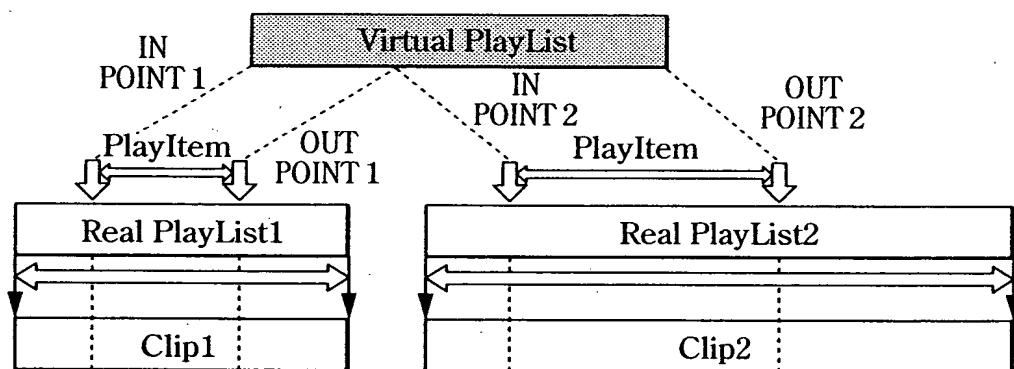


FIG.6B



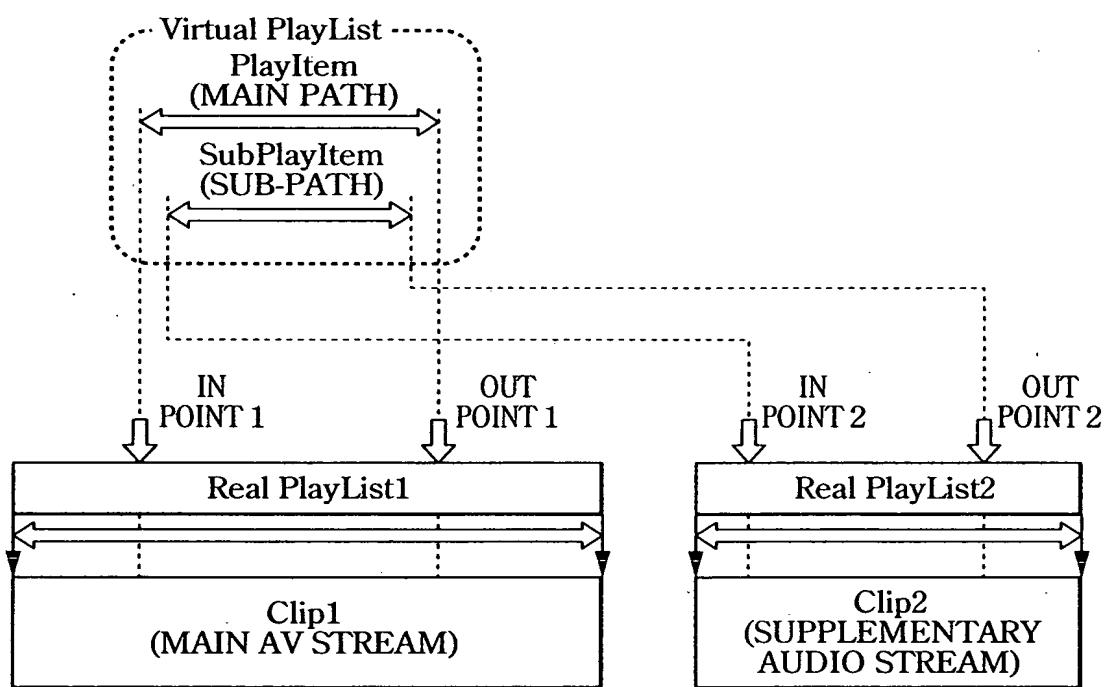


FIG.7

REPLAY SEQUENCE

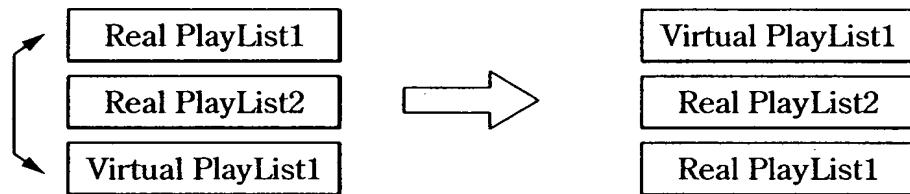


FIG.8

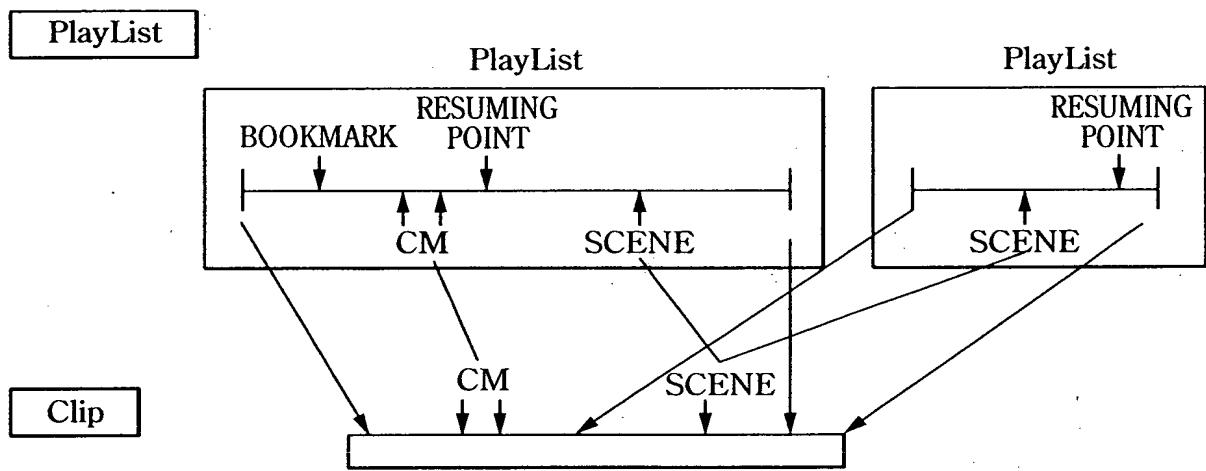


FIG.9

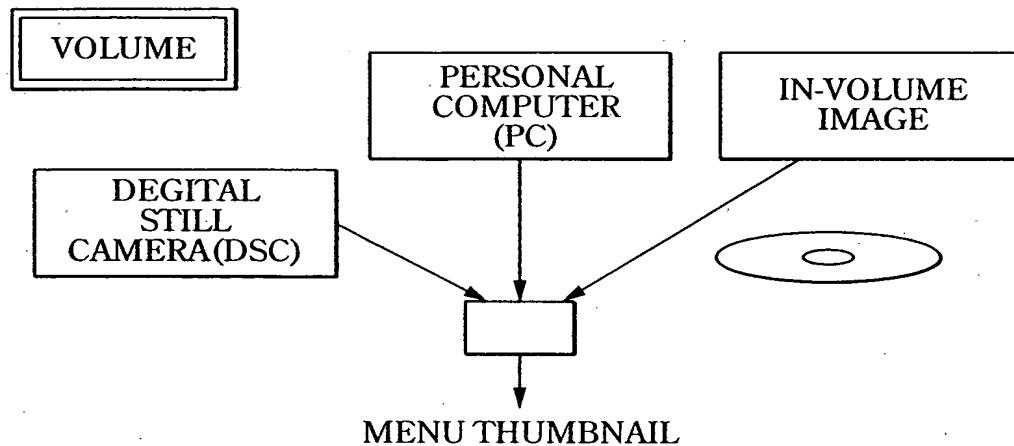


FIG.10

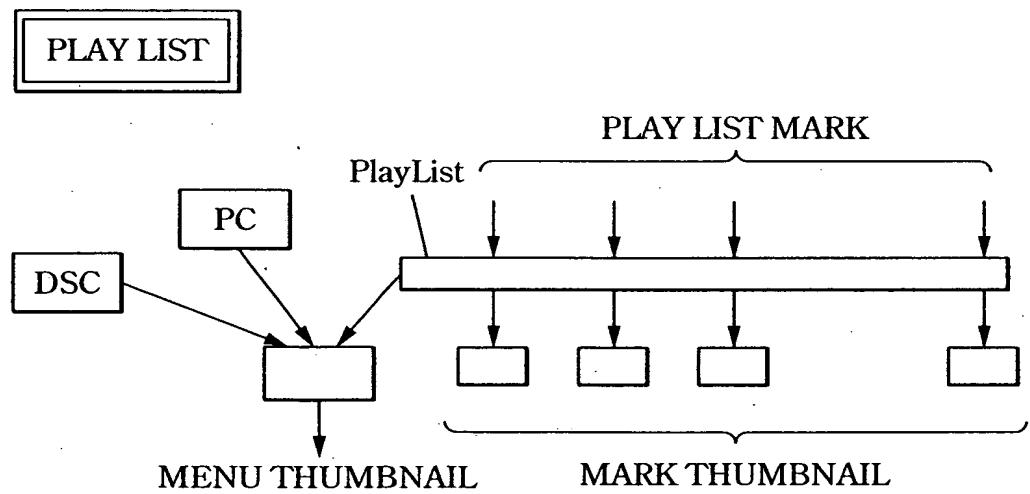


FIG.11

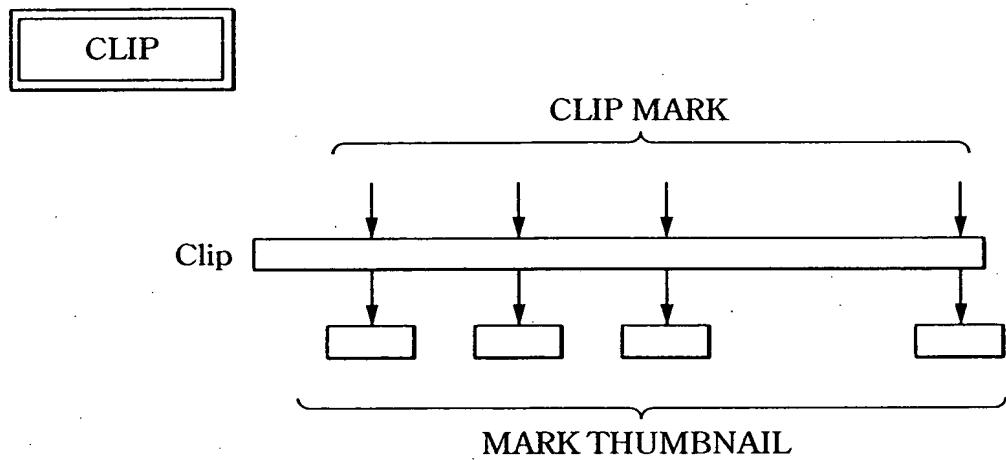


FIG.12

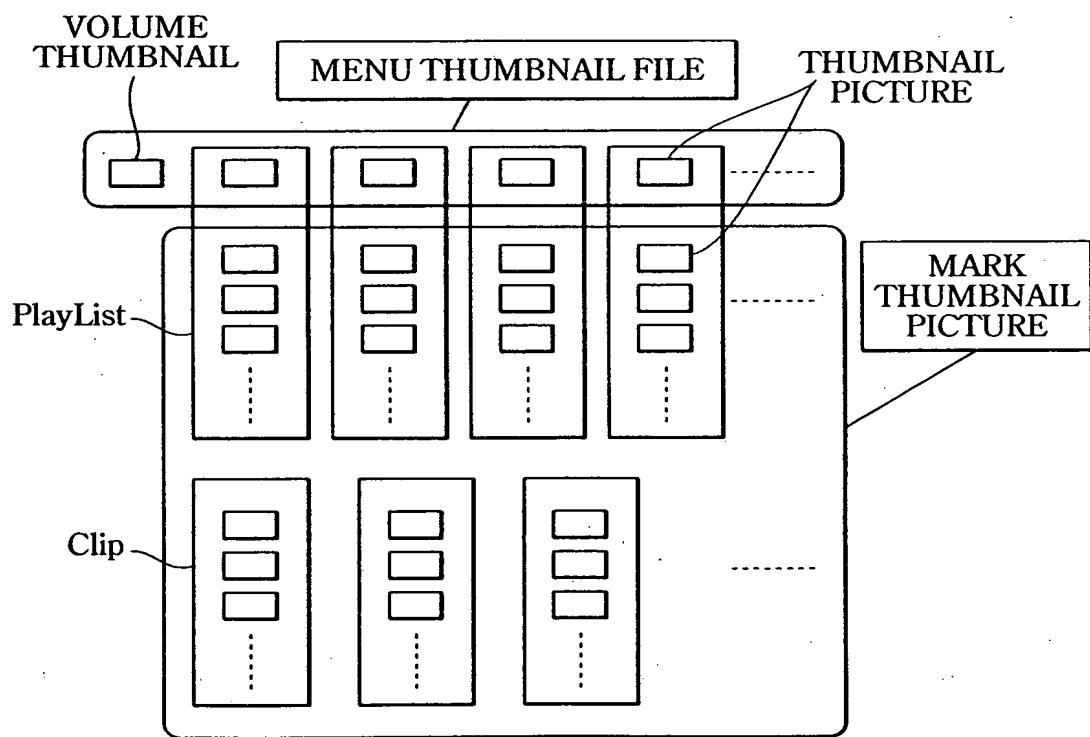


FIG.13

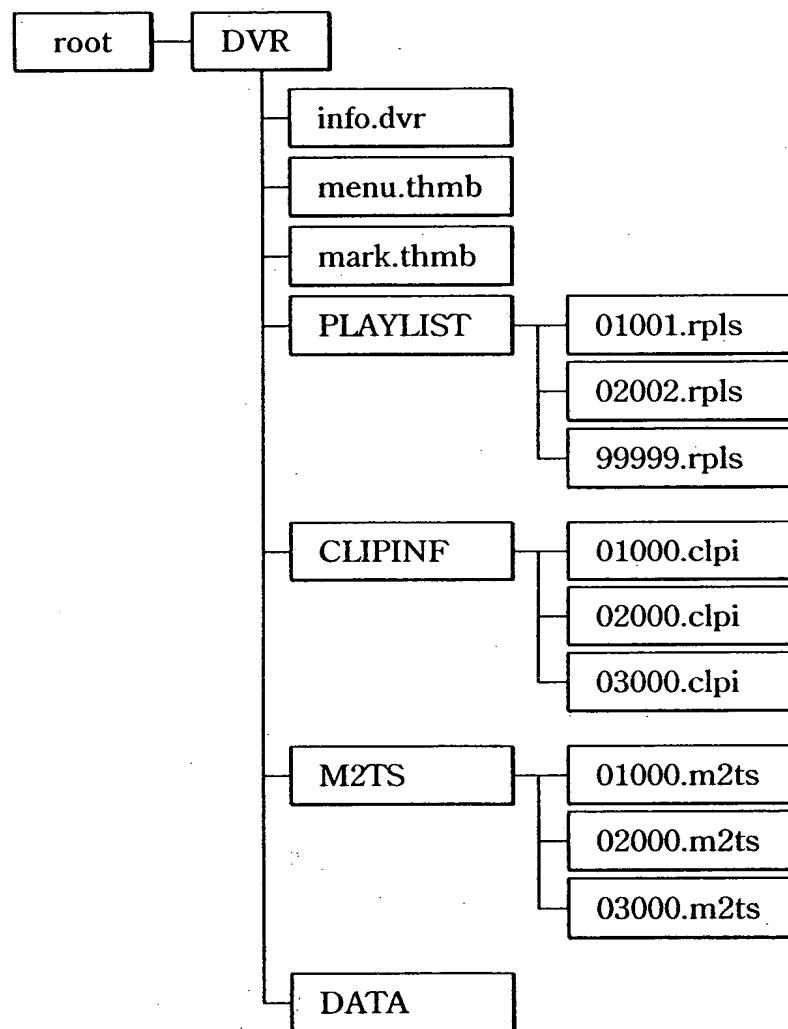


FIG.14

SYNTAX	NUMBER OF BYTES	ABBREVIATION
info.dvr {		
TableOfPlayLists_Start_address	32	uimsbf
MakersPrivateData_Start_address	32	uimsbf
reserved	192	bslbf
DVRVolume()		
for (i=0;i<N1;i++) {		
padding_word	16	bslbf
}		
TableOfPlayLists()		
for (i=0;i<N2;i++) {		
padding_word	16	bslbf
}		
MakersPrivateData()		
}		

FIG.15

SYNTAX	NUMBER OF BYTES	ABBREVIATION
DVRVolume{		
version_number	8*4	bslbf
length	32	uimsbf
ResumeVolume()		
UIAppInfoVolume()		
}		

FIG.16

SYNTAX	NUMBER OF BYTES	ABBREVIATION
ResumeVolume0{		
reserved	15	bslbf
valid_flag	1	bslbf
resume_PlayList_name	8*10	bslbf
}		

FIG.17

SYNTAX	NUMBER OF BYTES	ABBREVIATION
UIAppInfoVolume{		
character_set	8	bslbf
name_length	8	uimsbf
Volume_name	8*256	bslbf
reserved	15	bslbf
Volume_protect_flag	1	bslbf
PIN	8*4	bslbf
ref_thumbnail_index	16	uimsbf
reserved_for_future_use	256	bslbf
}		

FIG.18

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VALUE	CHARACTER LETTER ENCODING
0x00	Reserved
0x01	ISO/IEC 646 (ASCII)
0x02	ISO/IEC 10646-1 (Unicode)
0x03-0xff	Reserved

FIG.19

SYNTAX	NUMBER OF BYTES	ABBREVIATION
TableOfPlayLists{		
version_number	8*4	bslbf
length	32	uimsbf
number_of_PlayLists	16	uimsbf
for (i=0; i<number_of_PlayLists; i++) {		
PlayList_file_name	8*10	bslbf
}		
}		

FIG.20

SYNTAX	NUMBER OF BYTES	ABBREVIATION
TableOfPlayLists0{		
version_number	8*4	bslbf
length	32	uimsbf
number_of_PlayLists	16	uimsbf
for (i=0; i<number_of_PlayLists; i++) {		
PlayList_file_name	8*10	bslbf
UIAppInfoPlayList()		
}		
}		

FIG.21

SYNTAX	NUMBER OF BYTES	ABBREVIATION
<code>MakersPrivateData()</code>		
<code>version_number</code>	<code>8*4</code>	<code>bslbf</code>
<code>length</code>	<code>32</code>	<code>uimsbf</code>
<code>if (length !=0){</code>		
<code> mpd_blocks_start_address</code>	<code>32</code>	<code>uimsbf</code>
<code> number_of_maker_entries</code>	<code>16</code>	<code>uimsbf</code>
<code> mpd_block_size</code>	<code>16</code>	<code>uimsbf</code>
<code> number_of_mpd_blocks</code>	<code>16</code>	<code>uimsbf</code>
<code> reserved</code>	<code>16</code>	<code>bslbf</code>
<code> for (i=0; i<number_of_maker_entries; i++){</code>		
<code> maker_ID</code>	<code>16</code>	<code>uimsbf</code>
<code> maker_model_code</code>	<code>16</code>	<code>uimsbf</code>
<code> start_mpd_block_number</code>	<code>16</code>	<code>uimsbf</code>
<code> reserved</code>	<code>16</code>	<code>bslbf</code>
<code> mpd_length</code>	<code>32</code>	<code>uimsbf</code>
<code> }</code>		
<code> stuffing_bytes</code>	<code>8*2*L1</code>	<code>bslbf</code>
<code> for(j=0; j<number_of_mpd_blocks; j++){</code>		
<code> mpd_block</code>	<code>mpd_block_size*1024*8</code>	
<code> }</code>		
<code> }</code>		
<code>}</code>		

FIG.22

SYNTAX	NUMBER OF BYTES	ABBREVIATION
xxxxx.rpls / yyyy.vpls {		
PlayListMark_Start_address	32	uimsbf
MakersPrivateData_Start_address	32	uimsbf
reserved	192	bslbf
PlayList()		
for (i=0;i<N1;i++) {		
padding_word	16	bslbf
}		
PlayListMark()		
for (i=0;i<N2;i++) {		
padding_word	16	bslbf
}		
MakersPrivateData()		
}		

FIG.23

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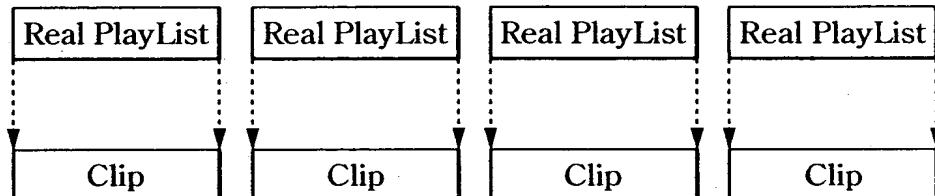


FIG.24A

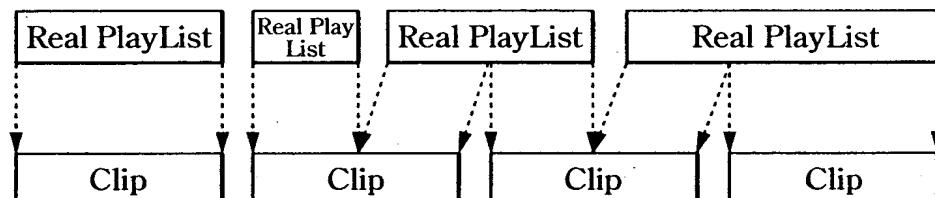


FIG.24B

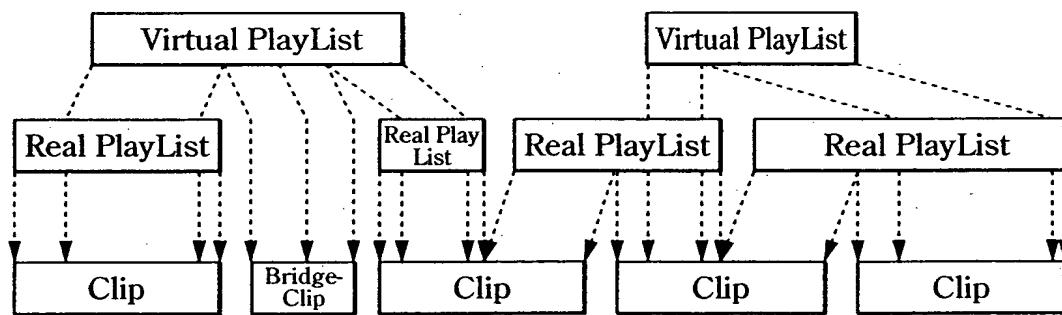


FIG.24C

SYNTAX	NUMBER OF BYTES	ABBREVIATION
PlayList()		
version_number	8*4	bslbf
length	32	uimsbf
PlayList_type	8	uimsbf
CPI_type	1	bslbf
reserved	7	bslbf
UIAppInfoPlayList()		
number_of_PlayItems // main path	16	uimsbf
if (<Virtual PlayList>){		
number_of_SubPlayItems // sub path	16	uimsbf
}else{		
reserved	16	bslbf
}		
for (PlayItem_id=0;		
PlayItem_id<number_of_PlayItems;		
PlayItem_id++{		
PlayItem() //main path		
}		
if (<Virtual PlayList>){		
if (CPI_type==0 && PlayList_type==0){		
for (i=0; i<number_of_SubPlayItems; i++)		
SubPlayItem() //sub path		
}		
}		
}		

FIG.25

PlayList_type	MEANING
0	PLAY LIST FOR AV RECORDING ALL CLIPS REFERENCED IN THIS PLAY LIST MUST CONTAIN ONE OR MORE VIDEO STREAMS
1	PLAY LIST FOR AUDIO RECORDING ALL CLIPS REFERENCED IN THIS PLAYLIST MUST CONTAIN ONE OR MORE AUDIO STREAMS AND MUST NOT CONTAIN VIDEO STREAMS
2-255	reserved

FIG.26

SYNTAX	NUMBER OF BYTES	ABBREVIATION
UIAppInfoPlayList20{		
character_set	8	bslbf
name_length	8	uimsbf
PlayList_name	8*256	bslbf
reserved	8	bslbf
record_time_and_date	4*14	bslbf
reserved	8	bslbf
duration	4*6	bslbf
valid_period	4*8	bslbf
maker_id	16	uimsbf
maker_code	16	uimsbf
reserved	11	bslbf
playback_control_flag	1	bslbf
write_protect_flag	1	bslbf
is_played_flag	1	bslbf
archive	2	bslbf
ref_thumbnail_index	16	uimsbf
reserved_for_future_use	256	bslbf
}		

FIG.27

write_protect_flag	MEANING
0b	THE PlayList CAN BE ERASED FREELY
1b	THE PlayList CONTENTS SHOULD NOT BE ERASED NOR CHANGED EXCEPT write-protect-flag

FIG.28A

is_played_flag	MEANING
0b	THE PlayList HAS NOT BEEN REPRODUCED SINCE ITS RECORDING
1b	THE PlayList WAS ONCE REPRODUCED SINCE ITS RECORDING

FIG.28B

archive	MEANING
00b	NO MEANING DEFINED
01b	ORIGINAL
10b	COPY
11b	reserved

FIG.28C

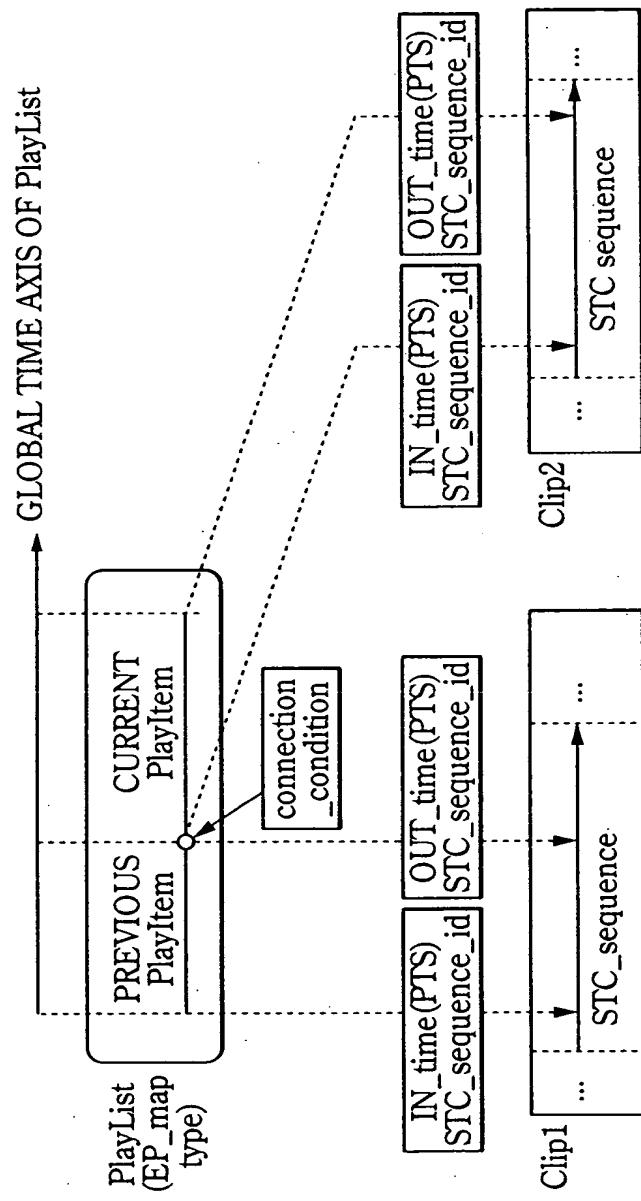


FIG. 29

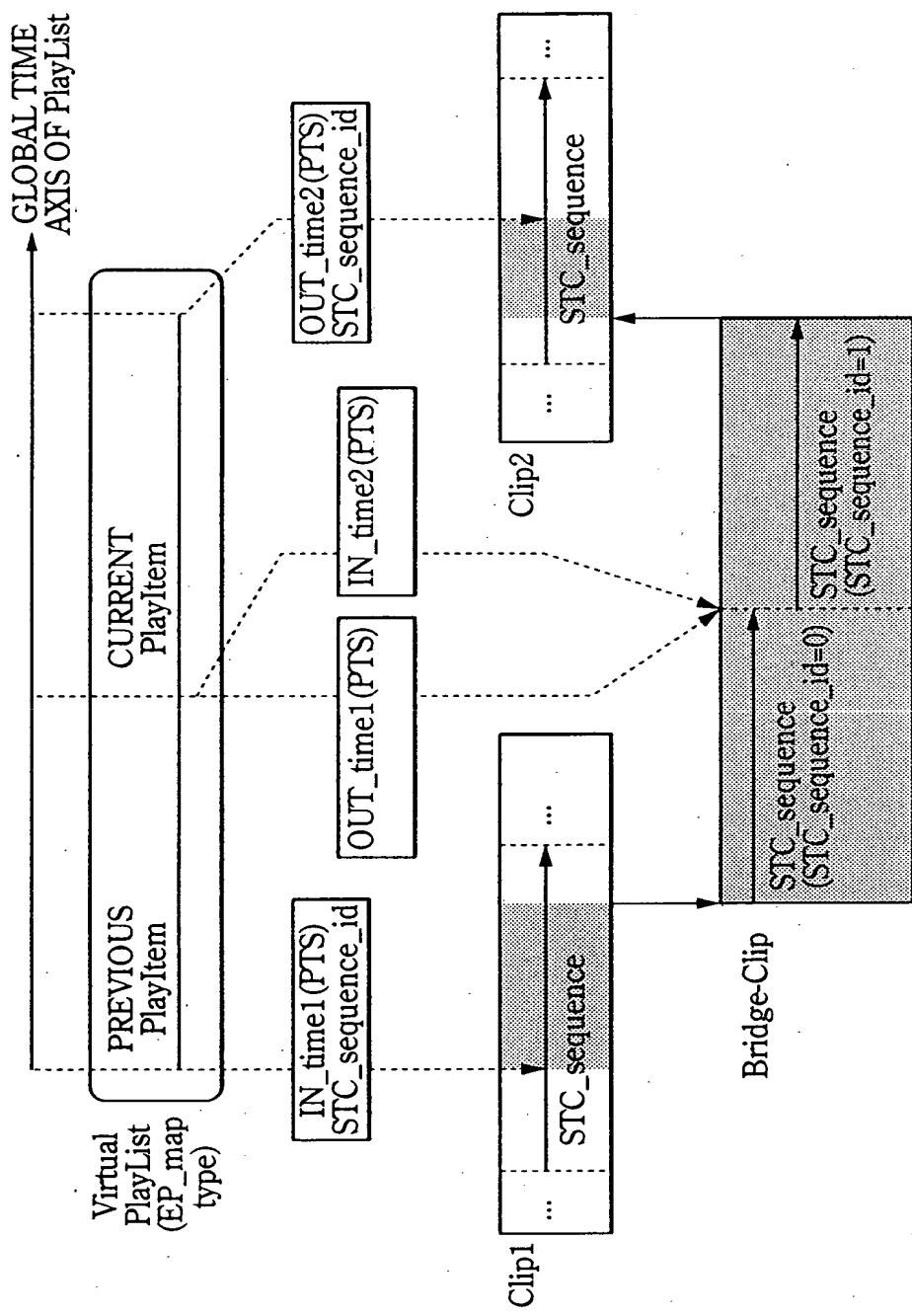


FIG.30

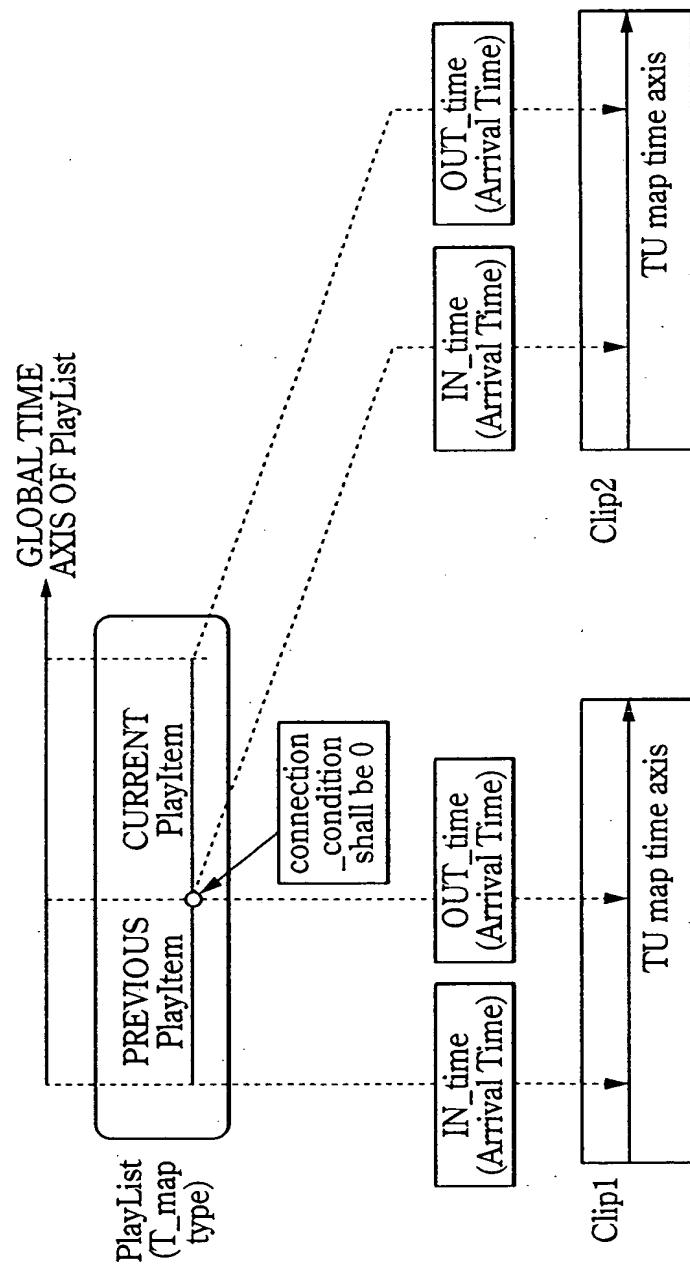


FIG.31

SYNTAX	NUMBER OF BYTES	ABBREVIATION
PlayItem(){		
Clip_information_file_name	8*10	bslbf
reserved	24	bslbf
STC_sequence_id	8	uimsbf
IN_time	32	uimsbf
OUT_time	32	uimsbf
reserved	14	bslbf
connection_condition	2	bslbf
if (<Virtual PlayList>){		
if (connection_condition=='10') {		
BridgeSequenceInfo()		
}		
}		
}		

FIG.32

CPI_type in the PlayList()	SEMANTICS OF IN_time
EP_map type	IN_time MUST INDICATE UPPER 32 BITS OF 33 BIT LENGTH CORRESPONDING TO FIRST PRESENTATION UNIT IN PlayItem
TU_map type	IN_time MUST BE TIME ON TU_map_time_axis, AND MUST BE ROUNDED TO time_unit PRECISION. IN-time IS CALCULATED BY FOLLOWING EQUATION: $\text{IN_time} = \text{TU_start_time \%}2^{32}$

FIG.33

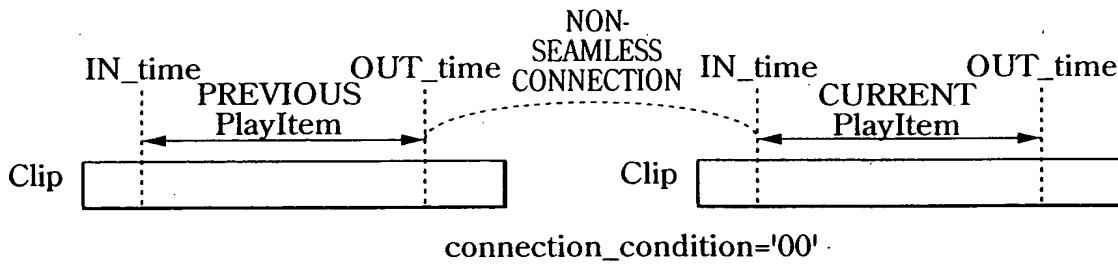
CPI_type in the PlayList()	SEMANTICS OF OUT_time
EP_map type	<p>OUT_time MUST INDICATE UPPER 32 BITS OF THE VALUE OF Presentation_end_TS CALCULATED BY FOLLOWING EQUTION:</p> $\text{Presentation_end_TS} = \text{PTS_out} + \text{AU_duration}$ <p>WHERE PTS_out IS 33-BIT LONG PTS CORRESPONDING TO LAST PRESENTATION UNIT IN PlayItem. AU_duration IS 90 kHz-DISPLAY TIME OF LAST PRESENTATION UNIT.</p>
TU_map type	<p>OUT_time MUST BE TIME ON TU_map_time_axis AND BE ROUNDED TO time_unit PRECISION. OUT_time IS CALCULATED BY FOLLOWING EQUATION:</p> $\text{OUT_time} = \text{TU_start_time} \% 2^{32}$

FIG.34

connection_condition	MEANING
00	<ul style="list-style-type: none"> • CONNECTION OF PREVIOUS PlayItem TO CURRENT PlayItem IS NOT SURE AS TO SEAMLESS REPLAY. • IF CPI_type OF PlayList IS TU_map type, THIS VALUE MUST BE SET IN connection_condition.
01	<ul style="list-style-type: none"> • THIS STATE IS ALLOWED ONLY WHEN CPI_type OF PlayList IS EP_map type. • PREVIOUS PlayItem AND CURRENT PlayItem INDICATE DIVISION BECAUSE OF NON-CONTINUOUS POINT OF SYSTEM TIMEBASE (STC BASE).
10	<ul style="list-style-type: none"> • THIS STATE IS ALLOWED ONLY WHEN CPI_type OF PlayList IS EP_map type. • THIS STATE IS ALLOWED ONLY FOR Virtual PlayList. • CONNECTION OF PREVIOUS PlayItem TO CURRENT PlayItem IS SURE AS TO SEAMLESS REPLAY. • PREVIOUS PlayItem IS CONNECTED TO CURRENT PlayItem USING BridgeSequence. DVR MPEG-2 TRANSPORT STREAM MUST OBEY DVR-STD AS LATER DESCRIBED.
11	<ul style="list-style-type: none"> • THIS STATE IS ALLOWED ONLY WHEN CPI_type OF PlayList IS EP_map type. • CONNECTION OF PREVIOUS PlayItem TO CURRENT Play Item IS SURE AS TO SEAMLESS REPLAY. • PREVIOUS PlayItem IS CONNECTED TO CURRENT PlayItem WITHOUT USING BridgeSequence. DVR MPEG-2 TRANSPORT STREAM MUST OBEY DVR-STD AS LATER DESCRIBED.

FIG.35

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connection_condition='00'

FIG.36A

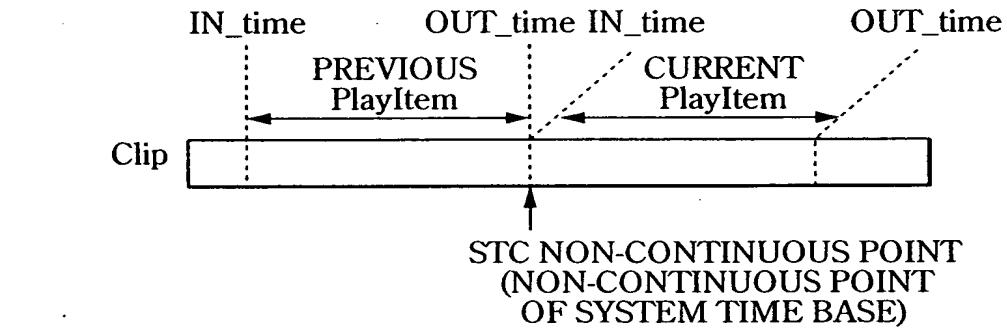


FIG.36B

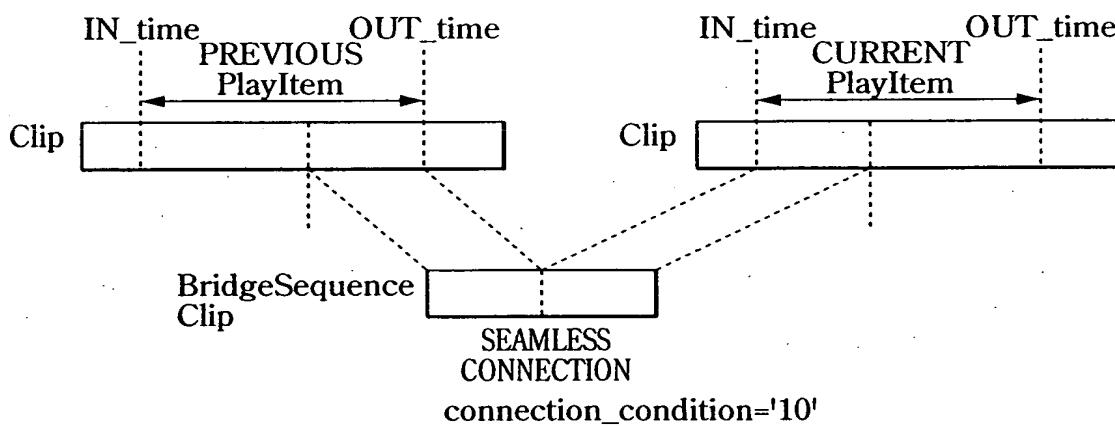
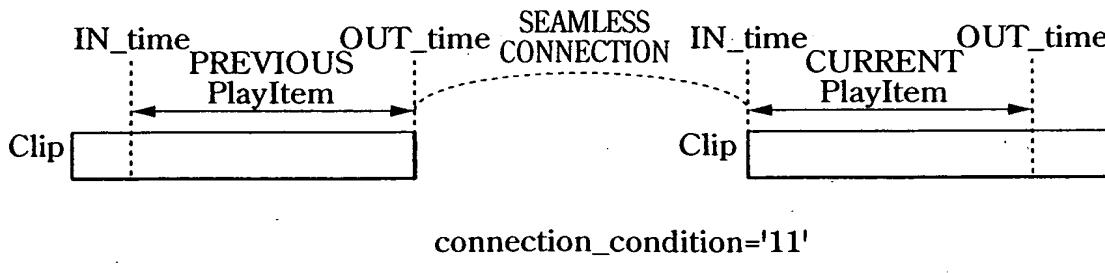


FIG.36C



connection_condition='11'

FIG.36D

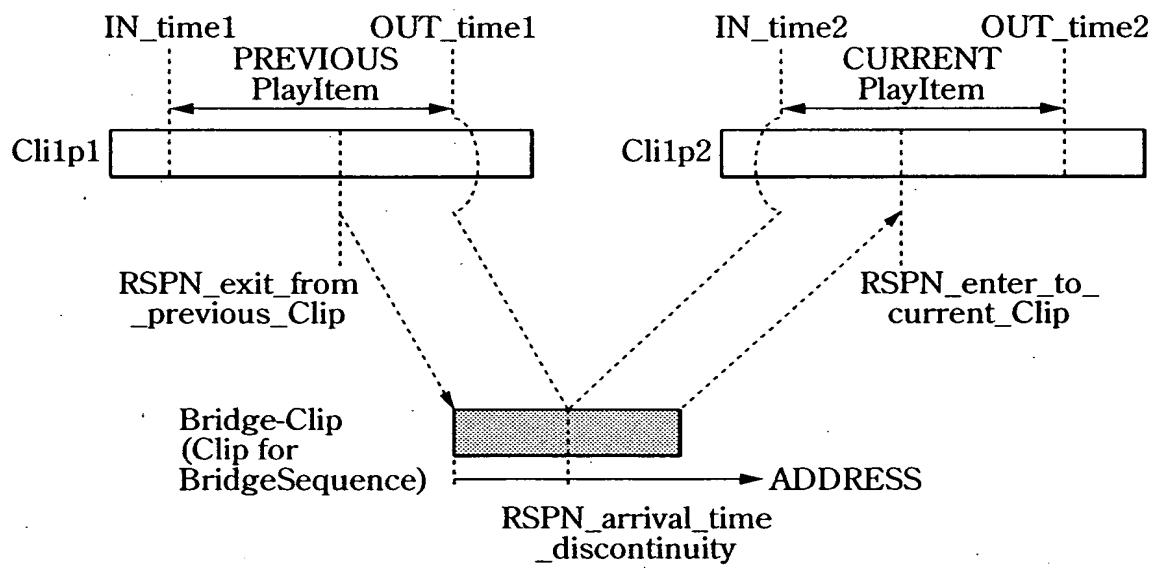


FIG.37

SYNTAX	NUMBER OF BYTES	ABBREVIATION
BridgeSequenceInfo0 {		
Bridge_Clip_information_file_name	8*10	bslbf
RSPN_exit_from_previous_Clip	32	uimsbf
RSPN_enter_to_current_Clip	32	uimsbf
}		

FIG.38

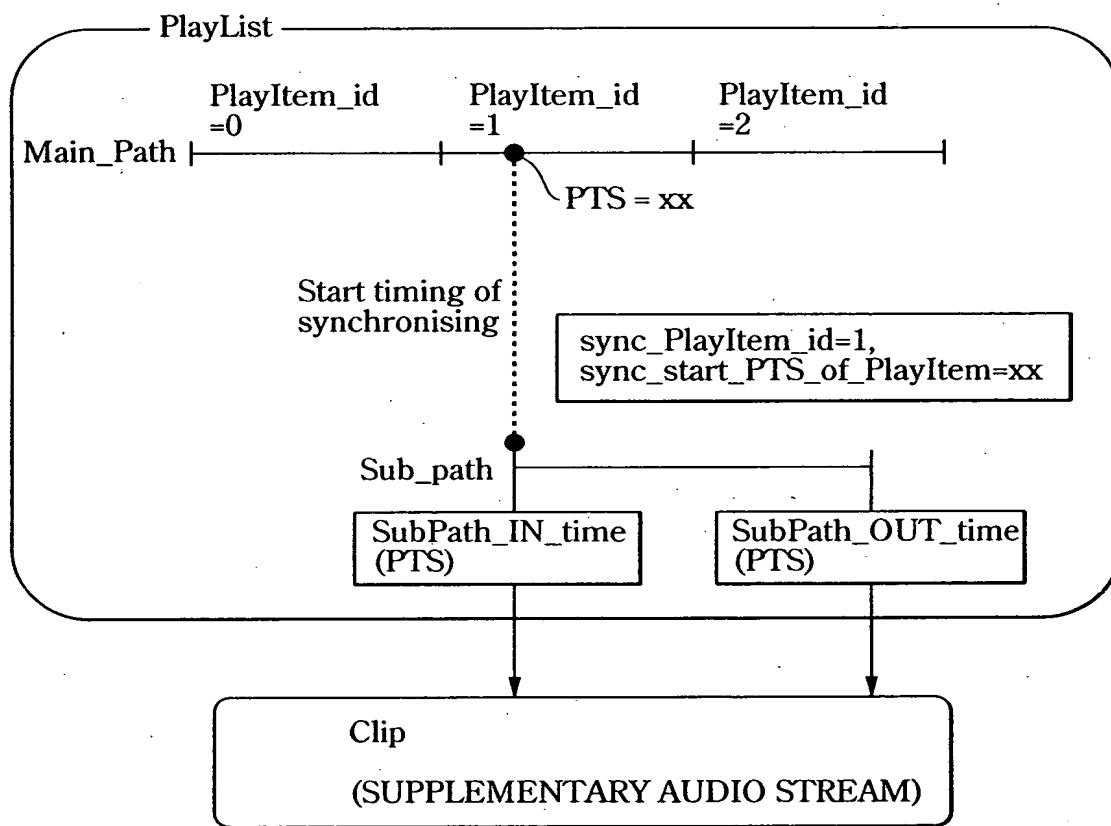


FIG.39

SYNTAX	NUMBER OF BYTES	ABBREVIATION
SubPlayItem()		
Clip_Information_file_name	8*10	bslbf
SubPath_type	8	bslbf
sync_PlayItem_id	8	uimsbf
sync_start PTS_of_PlayItem	32	uimsbf
SubPath_IN_time	32	uimsbf
SubPath_OUT_time	32	uimsbf
}		

FIG.40

SubPath_type	MEANING
0x00	Auxiliary audio steam path
0x01-0xff	reserved

FIG.41

SYNTAX	NUMBER OF BYTES	ABBREVIATION
PlayListMark()		
version_number	8*4	bslbf
length	32	uimsbf
number_of_PlayList_marks	16	uimsbf
for (i=0;i<number_of_PlayList_marks;i++){		
reserved	8	bslbf
mark_type	8	bslbf
mark_time_stamp	32	uimsbf
PlayItem_id	8	uimsbf
reserved	24	uimsbf
character_set	8	bslbf
name_length	8	uimsbf
mark_name	8*256	bslbf
ref_thumbnail_index	16	uimsbf
}		
}		

FIG.42

Mark_type	MEANING	COMMENT
0x00	resume-mark	REPLAY RESUME POINT. THE NUMBER OF REPLAY RESURE POINTS DEFINED IN PlayListMark() MUST BE 0 OR 1.
0x01	book-mark	REPLAY ENTRY POINT OF PlayList. THIS MARK CAN BE SET BY USER AND USED AS MARK SPECIFYING START POINT OF FAVORITE SCENE.
0x02	skip-mark	SKIP MARK POINT. PLAYER SKIPS PROGRAM FROM THIS POINT TO THE END OF PROGRAM. THE NUMBER OF SKIP MARK POINTS DEFINED IN PlayListMark() MUST BE 0 OR 1.
0x03-0x8F	reserved	
0x90-0xFF	reserved	Reserved for ClipMark()

FIG.43

CPI_type in the PlayList()	SEMANTICS OF mark_time_stamp
EP_map type	mark_time_stamp MUST INDICATE UPPER 32 BITS OF 33 BIT LENGTH PTS CORRESPONDING TO PRESENTATION UNIT REFERENCED BY MARK.
TU_map type	mark_time_stamp MUST BE TIME ON TU_map_time_axis AND MUST BE ROUNDED TO time_unit PRECISION. mark_time_stamp IS CALCULATED BY FOLLOWING EQUATION: $\text{mark_time_stamp} = \text{TU_start_time} \% 2^{32}$

FIG.44

SYNTAX	NUMBER OF BYTES	ABBREVIATION
<code>zzzzz.clpi {</code>		
<code>STC_Info_Start_address</code>	32	uimsbf
<code>ProgramInfo_Start_address</code>	32	uimsbf
<code>CPI_Start_address</code>	32	uimsbf
<code>ClipMark_Start_address</code>	32	uimsbf
<code>MakersPrivateData_Start_address</code>	32	uimsbf
<code>reserved</code>	96	bslbf
<code>ClipInfo()</code>		
<code>for (i=0;i<N1;i++){</code>		
<code>padding_word</code>	16	bslbf
<code>}</code>		
<code>STC_Info()</code>		
<code>for (i=0;i<N2;i++){</code>		
<code>padding_word</code>	16	bslbf
<code>}</code>		
<code>ProgramInfo()</code>		
<code>for (i=0;i<N3;i++){</code>		
<code>padding_word</code>	16	bslbf
<code>}</code>		
<code>CPI()</code>		
<code>for (i=0;i<N4;i++){</code>		
<code>padding_word</code>	16	bslbf
<code>}</code>		
<code>ClipMark()</code>		
<code>for (i=0;i<N5;i++){</code>		
<code>padding_word</code>	16	bslbf
<code>}</code>		
<code>MakersPrivateData()</code>		
<code>}</code>		

FIG.45

SYNTAX	NUMBER OF BYTES	ABBREVIATION
ClipInfo0{		
version_number	8*4	bslbf
length	32	uimsbf
Clip_stream_type	8	bslbf
offset_SPN	32	uimsbf
TS_recording_rate	24	uimsbf
reserved	8	bslbf
record_time_and_date	4*14	bslbf
reserved	8	bslbf
duration	4*6	bslbf
reserved	7	bslbf
time_controlled_flag	1	bslbf
TS_average_rate	24	uimsbf
<i>if(Clip_stream_type==1) // Bridge-Clip AV stream</i>		
RSPN_arrival_time_discontinuity	32	uimsbf
else		
reserved	32	bslbf
reserved_for_system_use	144	bslbf
reserved	11	bslbf
is_format_identifier_valid	1	bslbf
is_original_network_ID_valid	1	bslbf
is_transport_stream_ID_valid	1	bslbf
is_service_ID_valid	1	bslbf
is_country_code_valid	1	bslbf
format_identifier	32	bslbf
original_network_ID	16	uimsbf
transport_stream_ID	16	uimsbf
service_ID	16	uimsbf
country_code	24	bslbf
stream_format_name	16*8	bslbf
reserved_for_fortune_use	256	bslbf
}		

FIG.46

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Clip_stream_type	MEANING
0	Clip AV STREAM
1	Bridge-Clip AV STREAM
2-255	Reserved

FIG.47

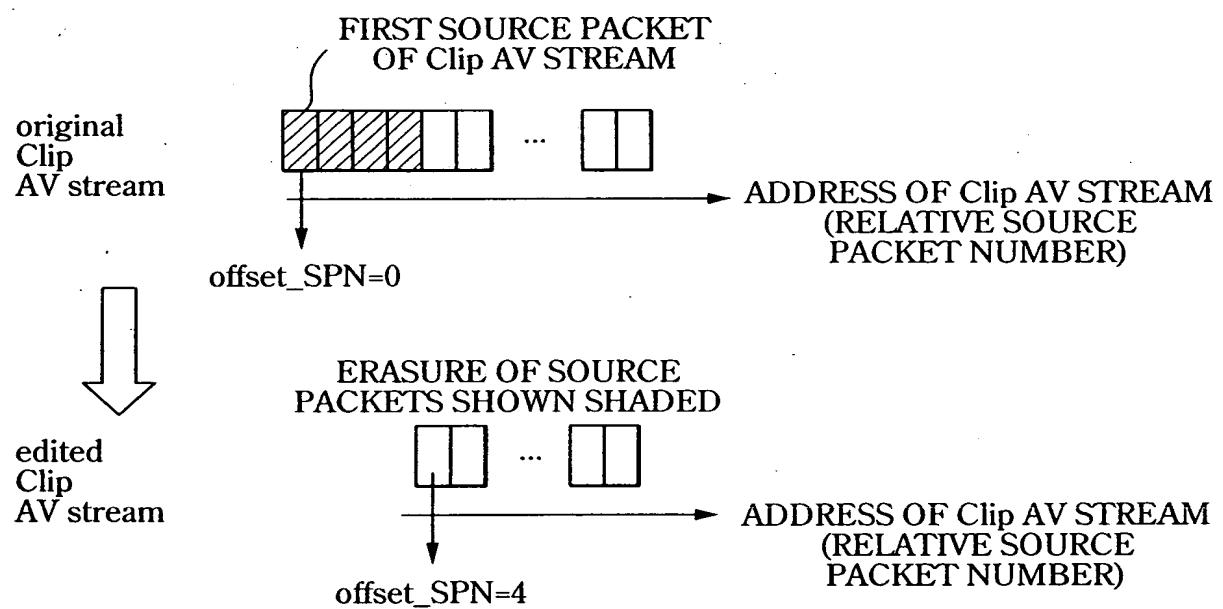


FIG.48

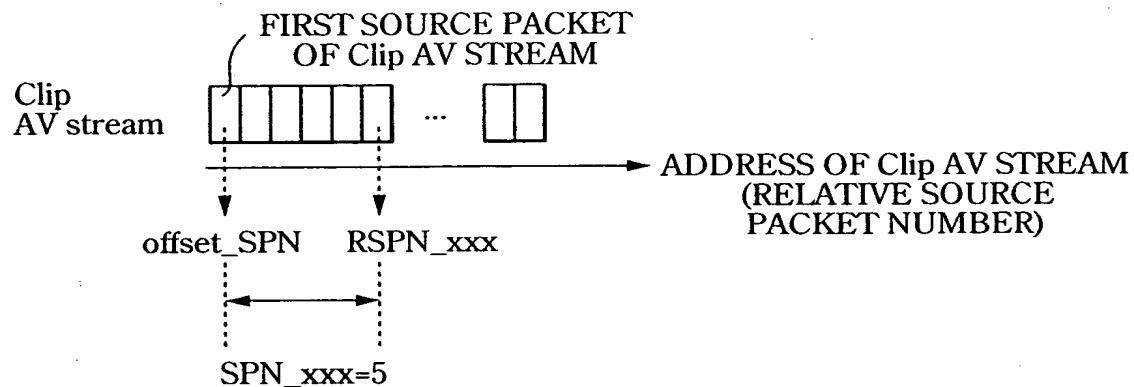


FIG.49

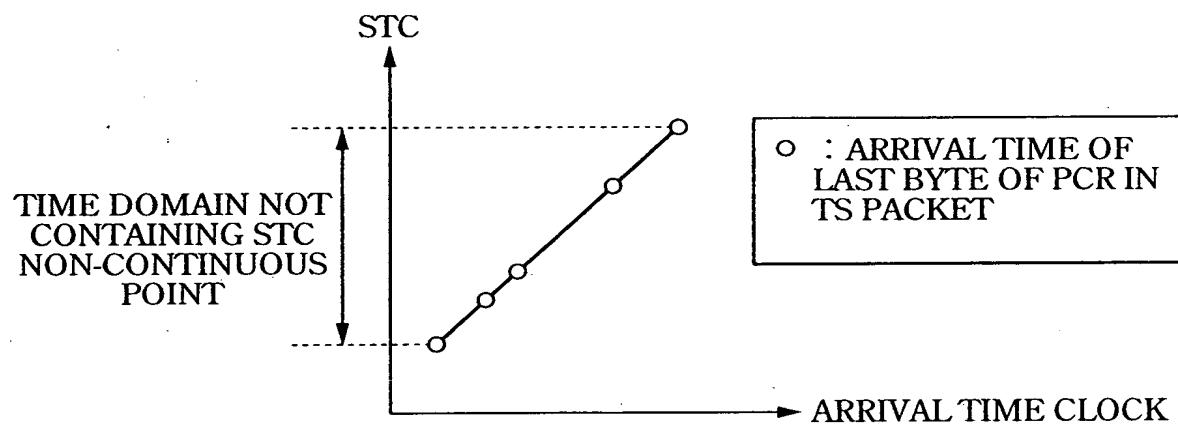


FIG.50A

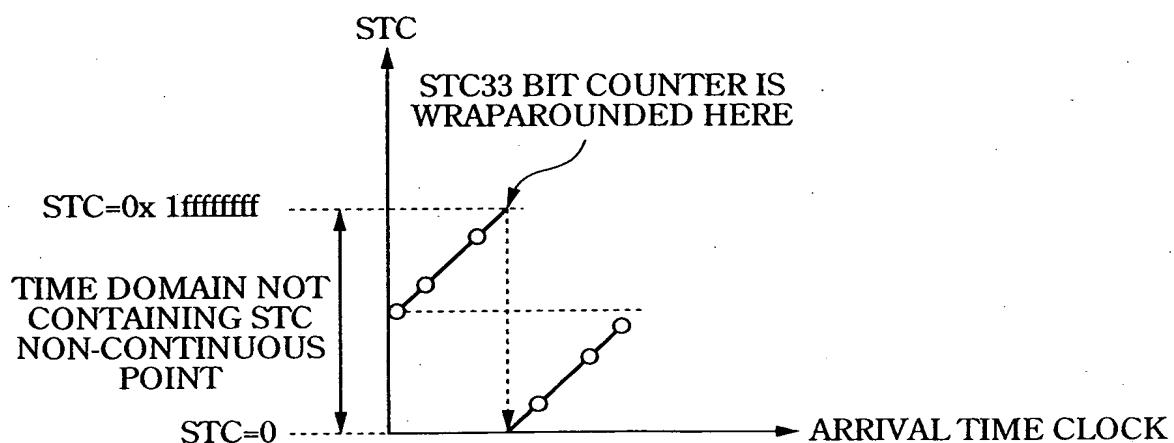


FIG.50B

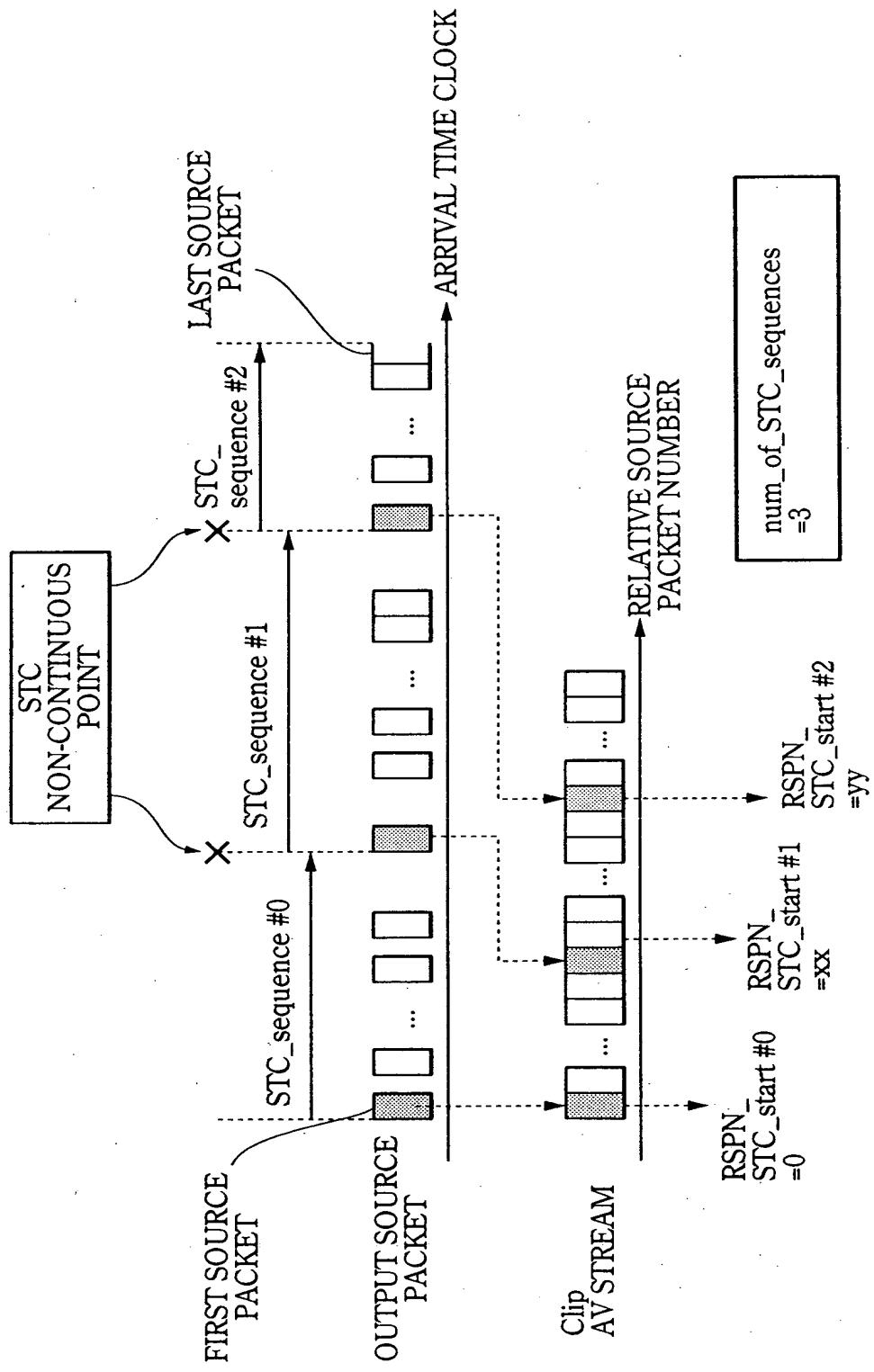
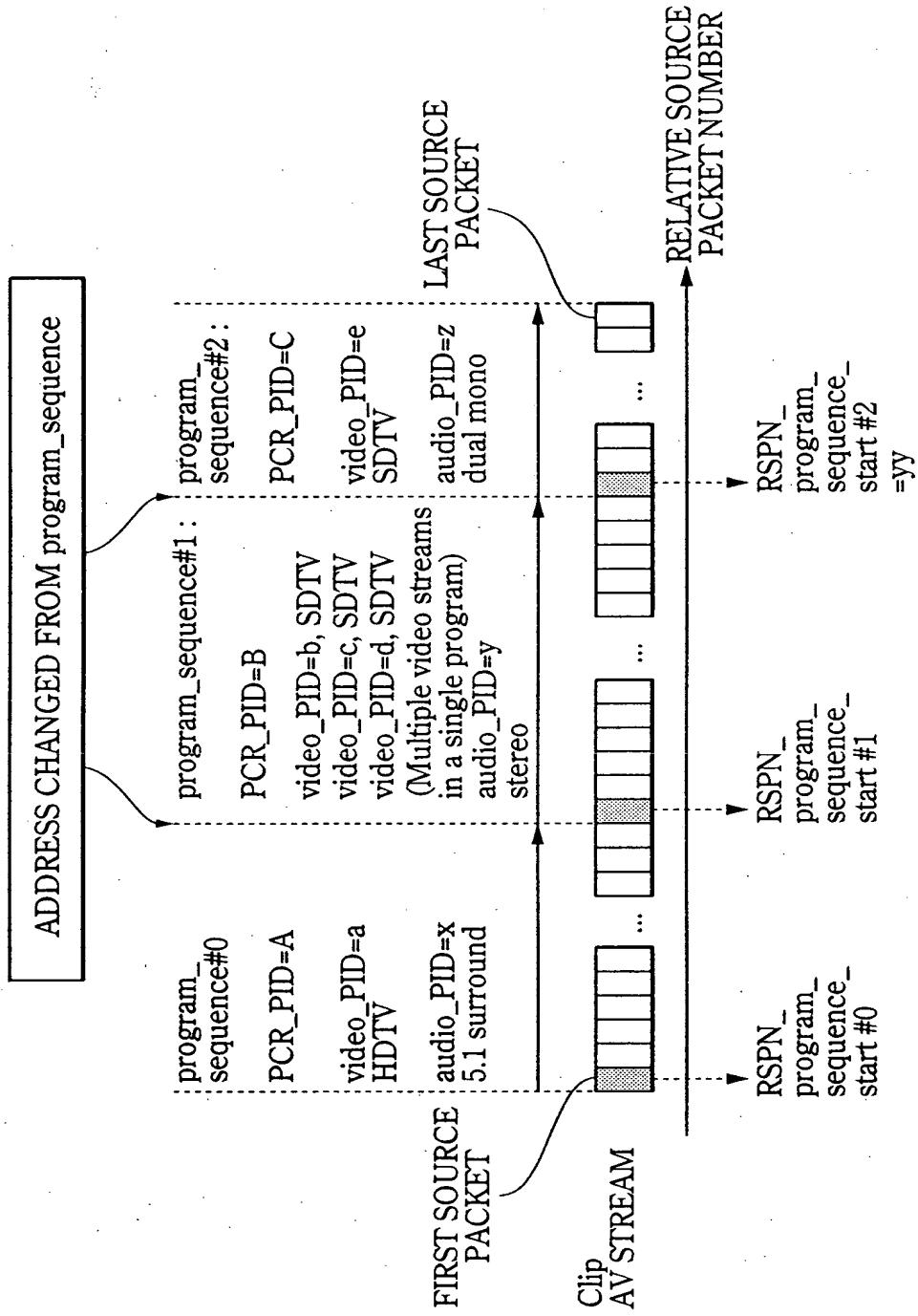


FIG.51

SYNTAX	NUMBER OF BYTES	ABBREVIATION
<code>STC_Info(){</code>		
<code>version_number</code>	<code>8*4</code>	<code>bslbf</code>
<code>length</code>	32	<code>uimsbf</code>
<code>if (length !=0){</code>		
<code>reserved</code>	8	<code>bslbf</code>
<code>num_of_STC_sequences</code>	8	<code>uimsbf</code>
<code>for (STC_sequence_id=0;</code>		
<code>STC_sequence_id<num_of_STC_sequences;</code>		
<code>STC_sequence_id++){</code>		
<code>resereved</code>	32	<code>bslbf</code>
<code>RSPN_STC_start</code>	32	<code>uimsbf</code>
<code>}</code>		
<code>}</code>		
<code>}</code>		

FIG.52



num_of_program_sequences=3

FIG.53

SYNTAX	NUMBER OF BYTES	ABBREVIATION
ProgramInfo()		
version_number	8*4	bslbf
length	32	uimsbf
if (length !=0){		
reserved	8	bslbf
number_of_program_sequences	8	uimsbf
for (i=0;i<number_of_program_sequences;i++){		
RSPN_program_sequence_start	32	uimsbf
reserved	48	bslbf
PCR_PID	16	bslbf
number_of_videos	8	uimsbf
number_of_audios	8	uimsbf
for (k=0;k<number_of_videos;k++){		
video_stream_PID	16	bslbf
VideoCodingInfo()		
}		
for (k=0;k<number_of_audios;k++){		
audio_stream_PID	16	bslbf
AudioCodingInfo()		
}		

SYNTAX	NUMBER OF BYTES	ABBREVIATION
VideoCodingInfo()		
video_format	8	uimsbf
frame_rate	8	uimsbf
display_aspect_ratio	8	uimsbf
reserved	8	bslbf
}		

FIG.55

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video_format	MEANING
0	480i
1	576i
2	480p (including 640×480p format)
3	1080i
4	720p
5	1080p
6-254	reserved
255	No information

FIG.56

frame_rate	MEANING
0	forbidden
1	24 000/1001 (23.976...)
2	24
3	25
4	30 000/1001 (29.97..)
5	30
6	50
7	60 000/1001 (59.94..)
8	60
9-254	reserved
255	No information

FIG.57

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display_aspect_ratio	MEANING
0	forbidden
1	reserved
2	4:3 display aspect ratio
3	16:9 display aspect ration
4-254	reserved
255	No information

FIG.58

SYNTAX	NUMBER OF BYTES	ABBREVIATION
AudioCodingInfo()		
audio_format	8	uimsbf
audio_component_type	8	uimsbf
sampling_frequency	8	uimsbf
reserved	8	bslbf
}		

FIG.59

audio_coding	MEANING
0	MPEG-1 audio layer I or II
1	Dolby AC-3 audio
2	MPEG-2 AAC
3	MPEG-2 multi-channel audio, backward compatible to MPEG-1
4	SESF LPCM audio
5-254	reserved
255	No information

FIG.60

audio_component_type	MEANING
0	single mono channel
1	dual mono channel
2	stereo (2-channel)
3	multi-lingual, multi-channel
4	surround sound
5	audio description for the visually impaired
6	audio for the hard of hearing
7-254	reserved
255	No information

FIG.61

sampling_frequency	MEANING
0	48 kHz
1	44.1 kHz
2	32 kHz
3-254	reserved
255	No information

FIG.62

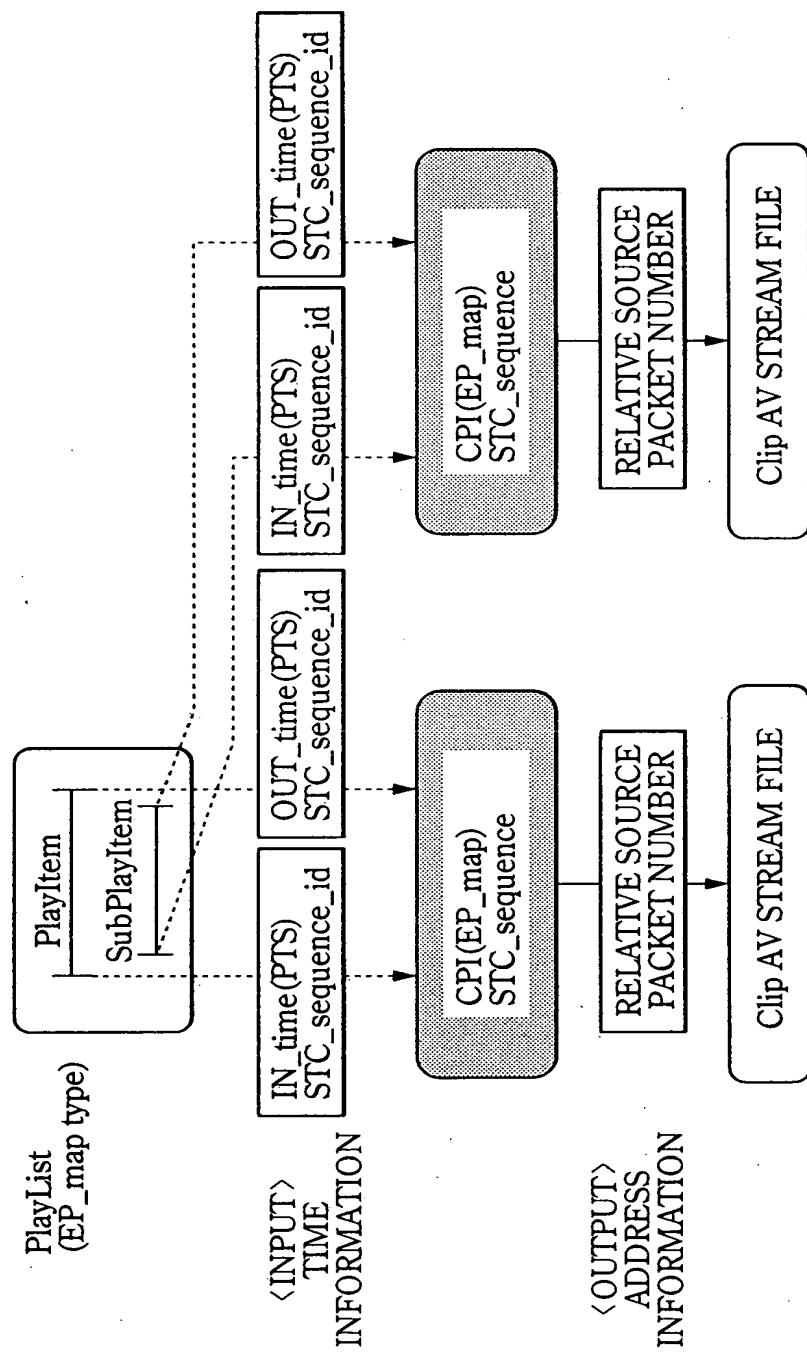


FIG.63

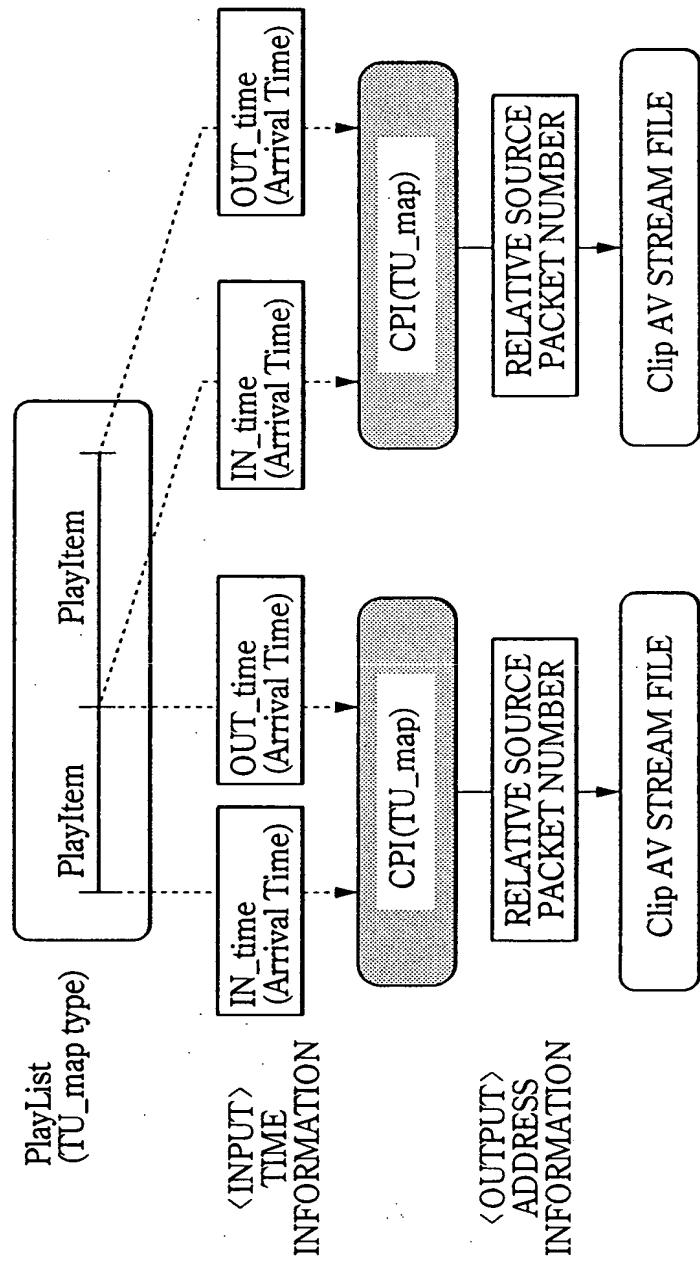


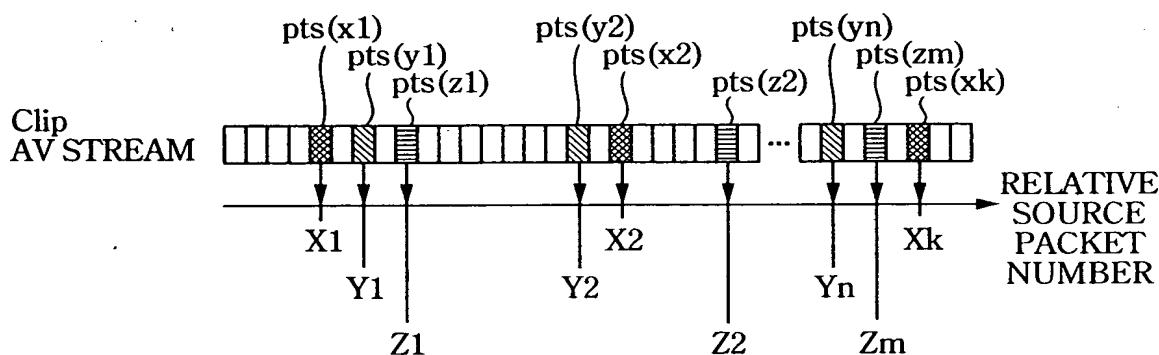
FIG.64

SYNTAX	NUMBER OF BYTES	ABBREVIATION
CPI0{		
version_number	8*4	bslbf
length	32	uimsbf
reserved	15	bslbf
CPI_type	1	bslbf
if (CPI_type==0)		
EP_map()		
else		
TU_map()		
}		

FIG.65

CPI_type	MEANING
0	EP map type
1	TU map type

FIG.66



- : SOURCE PACKET CONTAINING FIRST BYTE OF SEQUENCE HEADER video_PID=x
- : SOURCE PACKET CONTAINING FIRST BYTE OF SEQUENCE HEADER video_PID=y
- : SOURCE PACKET CONTAINING FIRST BYTE OF SEQUENCE HEADER video_PID=z

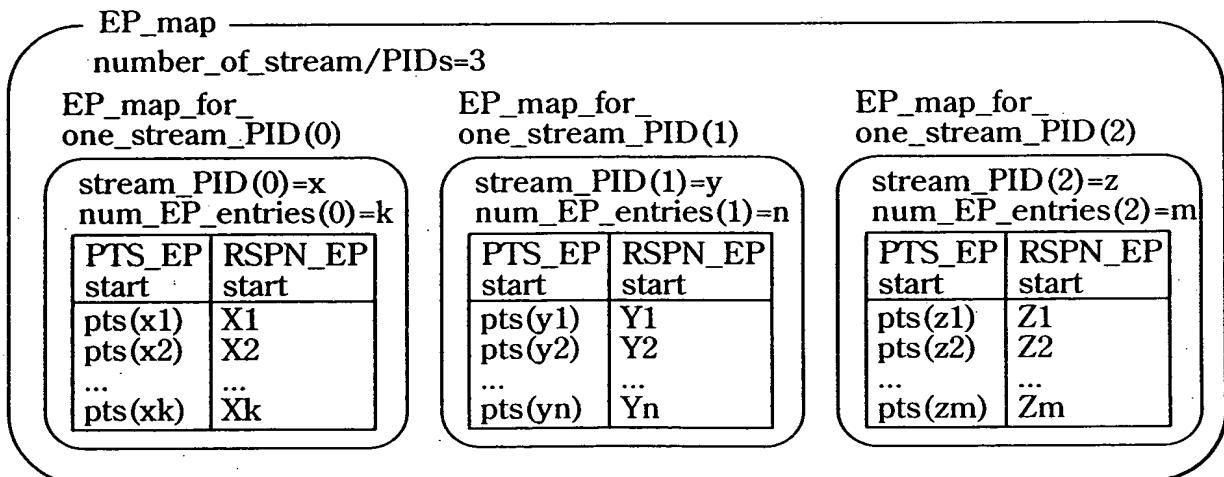


FIG.67

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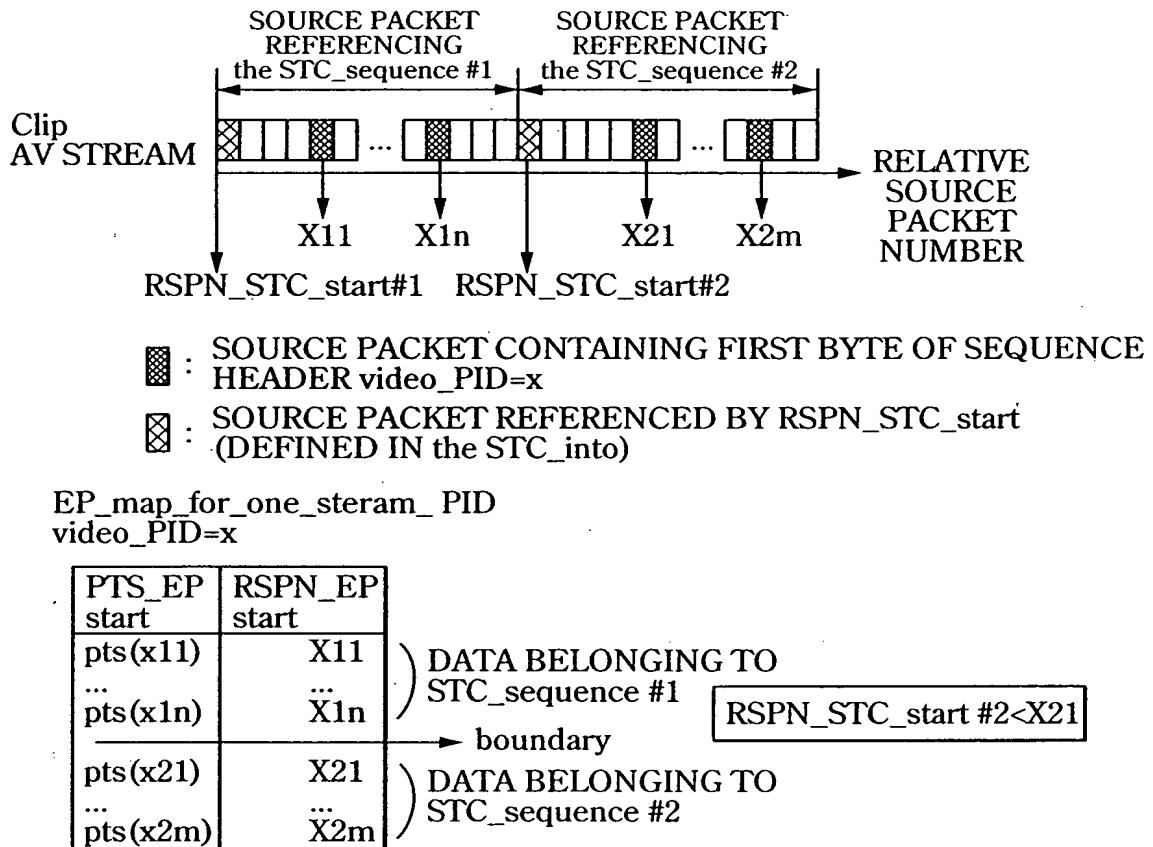


FIG.68

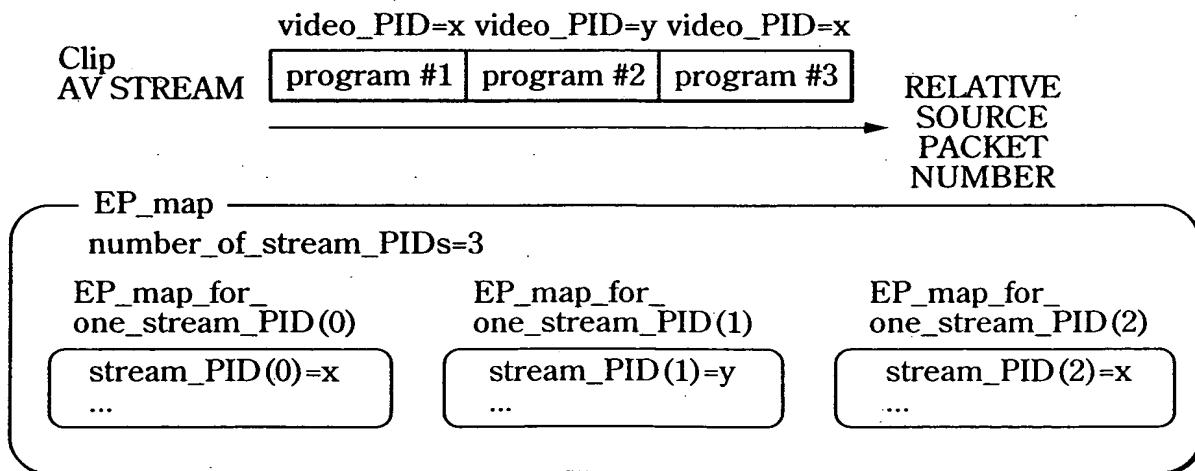


FIG.69

SYNTAX	NUMBER OF BYTES	ABBREVIATION
EP_map()		
reserved	12	bslbf
EP_type	4	uimsbf
number_of_stream_PIDs	16	uimsbf
for (k=0;k<number_of_stream_PIDs;k++){		
stream_PID(k)	16	bslbf
num_EP_entries(k)	32	uimsbf
EP_map_for_one_stream_PID_Start_address(k)	32	uimsbf
}		
for (i=0;i<X;i++){		
padding_word	16	bslbf
}		
for (k=0;k<number_of_stream_PIDs;k++){		
EP_map_for_one_stream_PID(num_EP_entries(k))		
for (i=0;i<Y;i++){		
padding_word	16	bslbf
}		
}		
}		

FIG.70

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EP_type	MEANING
0	video
1	audio
2-15	reserved

FIG.71

SYNTAX	NUMBER OF BYTES	ABBREVIATION
EP_map_for_one_stream_PID(<i>N</i>) {		
for (i=0;i< <i>N</i> ;i++) {		
PTS_EP_start	32	uimsbf
RSPN_EP_start	32	uimsbf
}		
}		

FIG.72

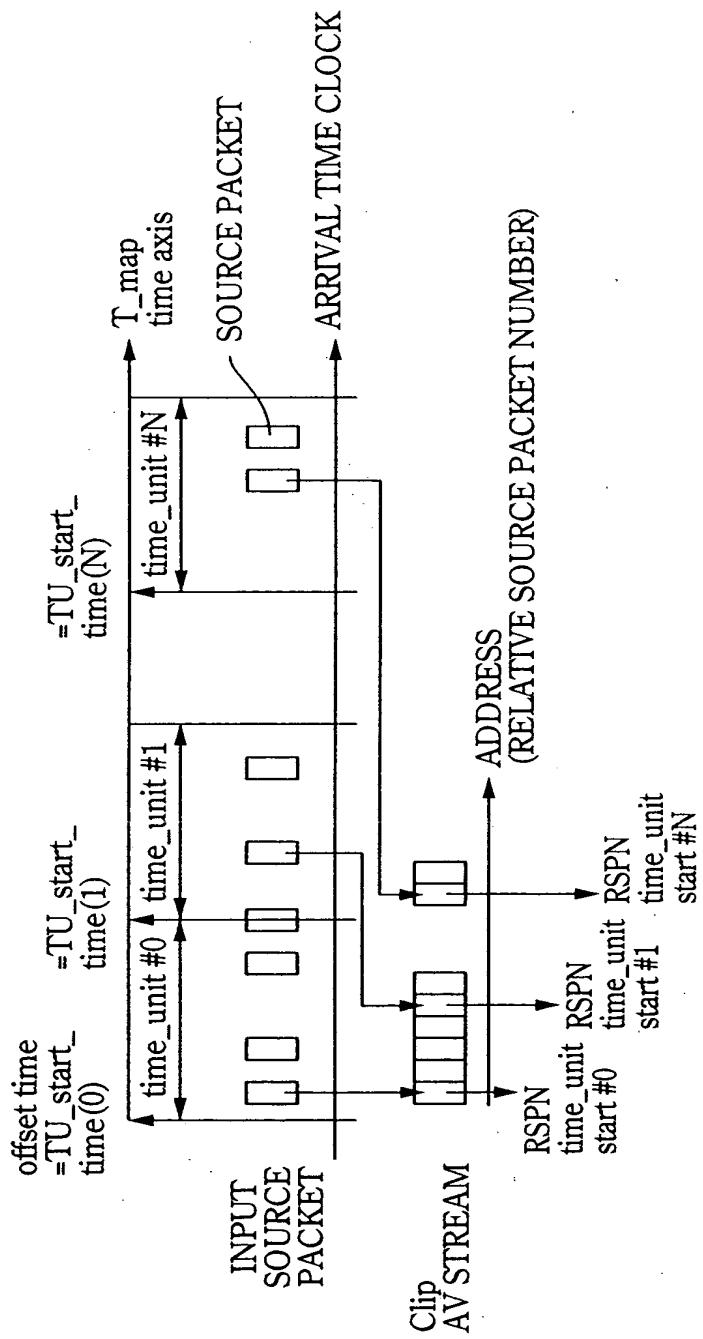


FIG.73

SYNTAX	NUMBER OF BYTES	ABBREVIATION
TU_map()		
offset_time	32	bslbf
time_unit_size	32	uimsbf
number_of_time_unit_entries	32	uimsbf
for (k=0;k<number_of_time_unit_entries;k++)		
RSPN_time_unit_start	32	uimsbf
}		

FIG.74

SYNTAX	NUMBER OF BYTES	ABBREVIATION
ClipMark0{		
version_number	8*4	bslbf
length	32	uimsbf
number_of_Clip_marks	16	uimsbf
for (i=0; i<number_of_clip_marks; i++){		
reserved	8	bslbf
mark_type	8	bslbf
mark_time_stamp	32	uimsbf
STC_sequence_id	8	uimsbf
reserved	24	bslbf
character_set	8	bslbf
name_length	8	uimsbf
mark_name	8*256	bslbf
ref_thumbnail_index	16	uimsbf
}		
}		

FIG.75

Mark_type	MEANING	COMMENT
0x00-0x8F	reserved	Reserved for PlayListMark0
0x90	Event-start mark	MARK POINT INDICATING PROGRAM START POINT
0x91	Local event-start mark	MARK POINT INDICATING LOCAL SCENE IN PROGRAM
0x92	Scene-start mark	MARK POINT SHOWING SCENE CHANGE POINT
0x93-0xFF	reserved	

FIG.76

CPI_type in the PlayList0	SEMANTICS OF mark_time_stamp
EP_map type	mark_time_stamp MUST INDICATE UPPER 32 BITS OF 33 BIT LENGTH PTS CORRESPONDING TO PRESENTATION UNIT REFERENCED BY MARK.
TU_map type	mark_time_stamp MUST BE TIME ON TU_map_time_axis AND MUST BE ROUNDED TO time_unit PRECISION. mark_time_stamp IS CALCULATED BY FOLLOWING EQUATION: $\text{mark_time_stamp} = \text{TU_start_time \%}2^{32}$

FIG.77

SYNTAX	NUMBER OF BYTES	ABBREVIATION
<code>ClipMark()</code>		
<code>version_number</code>	8*4	bslbf
<code>length</code>	32	uimsbf
<code>number_of_Clip_marks</code>	16	uimsbf
<code>for (i=0; i<number_of_Clip_marks; i++) {</code>		
<code>reserved</code>	8	bslbf
<code>mark_type</code>	8	bslbf
<code>reserved_for_MakerID</code>	16	bslbf
<code>mark_entry()</code>		
<code>representative_picture_entry()</code>		
<code>ref_thumbnail_index</code>	16	uimsbf
<code>}</code>		
<code>}</code>		

FIG.78

Mark_type	MEANING	COMMENT
0x00-0x8F	reserved	Reserved for PlayListMark()
0x90	Event-start mark	MARK POINT INDICATING PROGRAM START POINT
0x91	Local event-start mark	MARK POINT INDICATING LOCAL SCENE IN PROGRAM
0x92	Scene-start mark	MARK POINT INDICATING SCENE START POINT
0x93	Scene-end mark	MARK POINT INDICATING SCENE END POINT
0x94	CM-start mark	MARK POINT INDICATING CM START POINT
0x95	CM-end mark	MARK POINT INDICATING CM END POINT
0x96-0xBF	DVR FORMAT IS RESERVED FOR FUTURE EXTENSION OF ClipMark	
0xC0-0xFF	ALLOCATBLE TO MARK USED IN MAKER-UNIQUE APPLICATION	

FIG.79

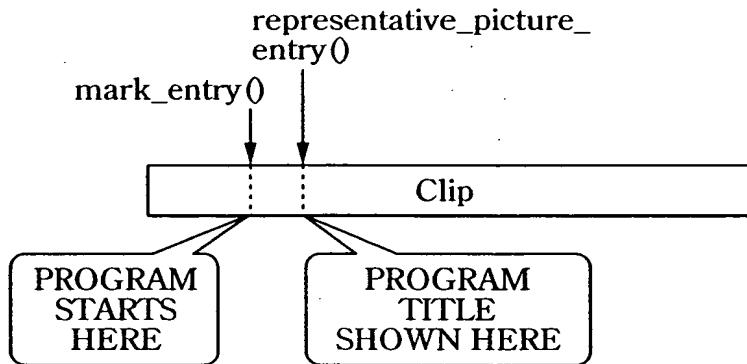


FIG.80

SYNTAX	NUMBER OF BYTES	ABBREVIATION
mark_entry0/representative_picture_entry0{		
mark_time_stamp	32	uimsbf
STC_sequence_id	8	uimsbf
reserved	24	bslbf
}		

FIG.81

SYNTAX	NUMBER OF BYTES	ABBREVIATION
mark_entry0/representative_picture_entry0{		
RSPN_ref_EP_start	32	uimsbf
offset_num_pictures	32	uimsbf
}		

FIG.82

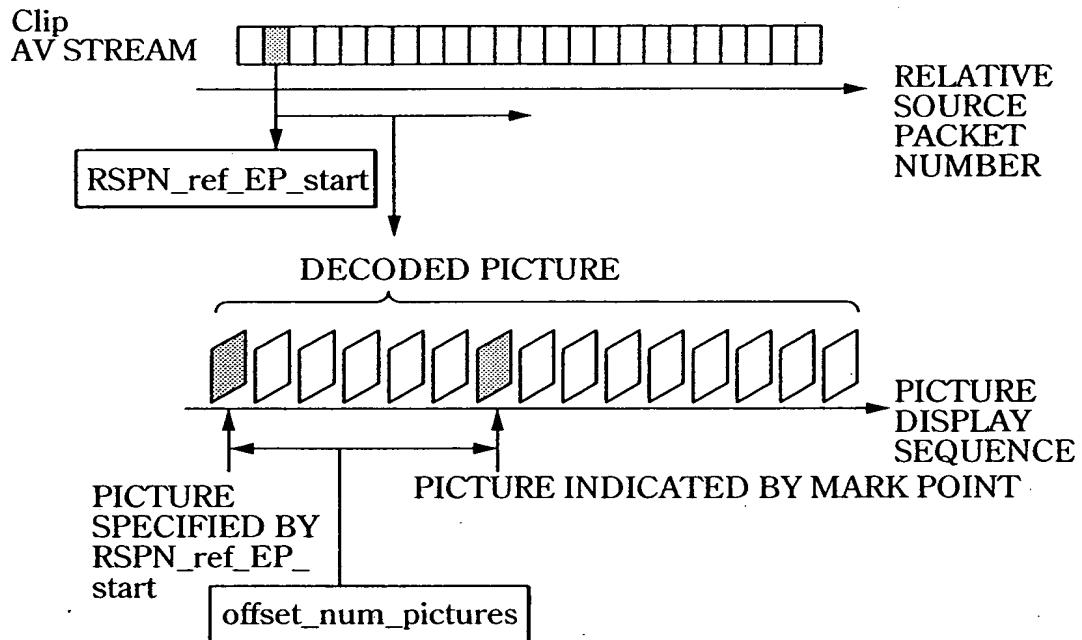


FIG.83

SYNTAX	NUMBER OF BYTES	ABBREVIATION
mark_entry() / representative_picture_entry()		
RSPN_mark_point	32	uimsbf
}		

FIG.84

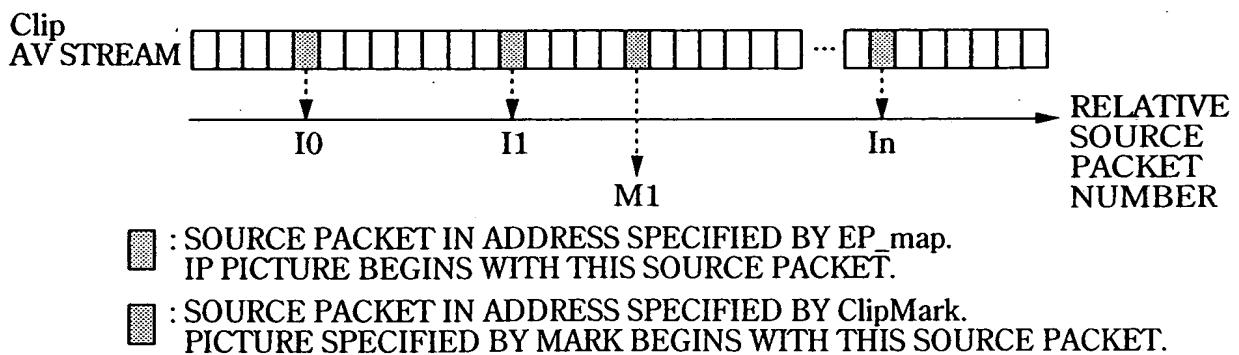


FIG.85

SYNTAX	NUMBER OF BYTES	ABBREVIATION
menu.thmb/mark.thmb()		
reserved	256	bslbf
Thumbnail()		
for (i=0;i<N1;i++)		
padding_word	16	bslbf
}		

FIG.86

SYNTAX	NUMBER OF BYTES	ABBREVIATION
Thumbnail()		
version_number	8*4	char
length	32	uimsbf
if (length !=0){		
tn_blocks_start_address	32	bslbf
number_of_thumbnails	16	uimsbf
tn_block_size	16	uimsbf
number_of_tn_blocks	16	uimsbf
reserved	16	bslbf
for (i=0; i<number_of_thumbnails; i++){		
thumbnail_index	16	uimsbf
thumbnail_picture_format	8	bslbf
reserved	8	bslbf
picture_data_size	32	uimsbf
start_tn_block_number	16	uimsbf
x_picture_length	16	uimsbf
y_picture_length	16	uimsbf
reserved	16	uimsbf
}		
stuffing_bytes	8*2*L1	bslbf
for(k=0; k<number_of_tn_blocks; k++){		
tn_block	tn_block_size*1024*8	
}		
}		
}		

FIG.87

Thumbnail_picture_format	MEANING
0x00	MPEG-2 Video I-picture
0x01	DCF (restricted JPEG)
0x02	PNG
0x03-0xff	reserved

FIG.88

FIG.89A

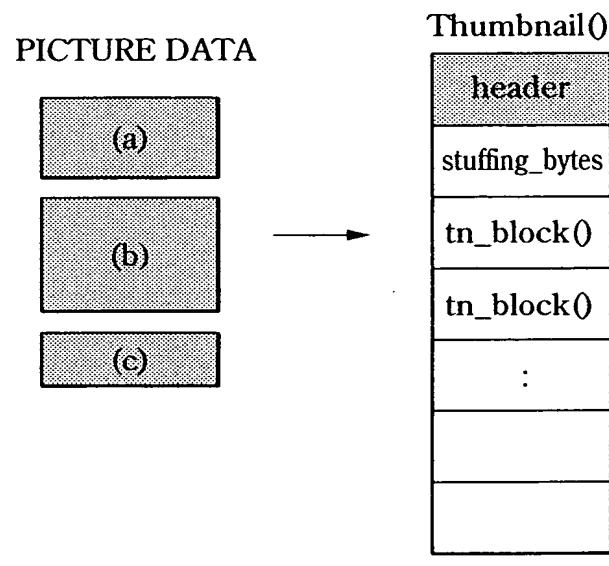
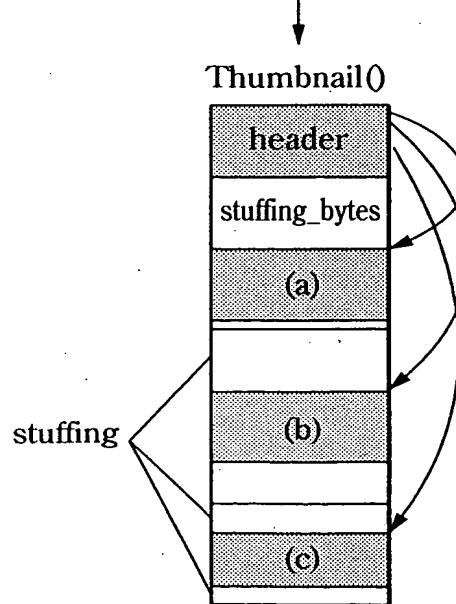


FIG.89B



DVR MPEG-2 TRANSPORT STREAM

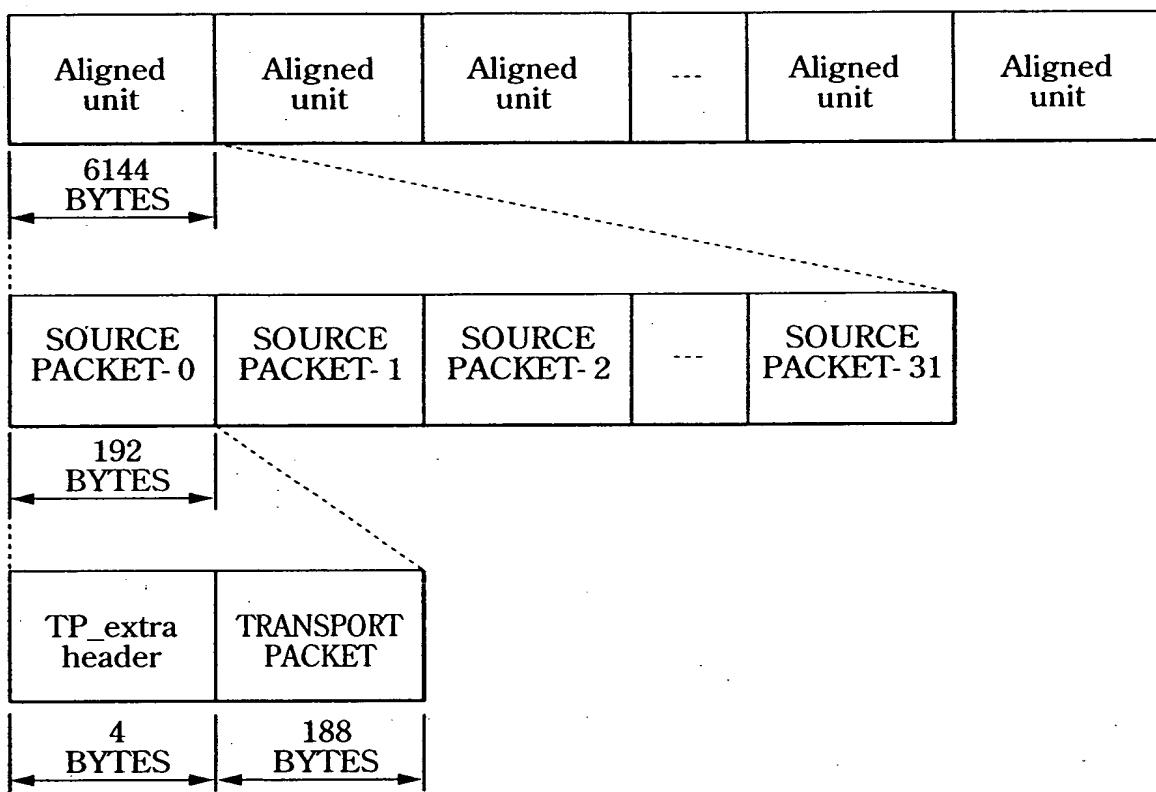


FIG.90

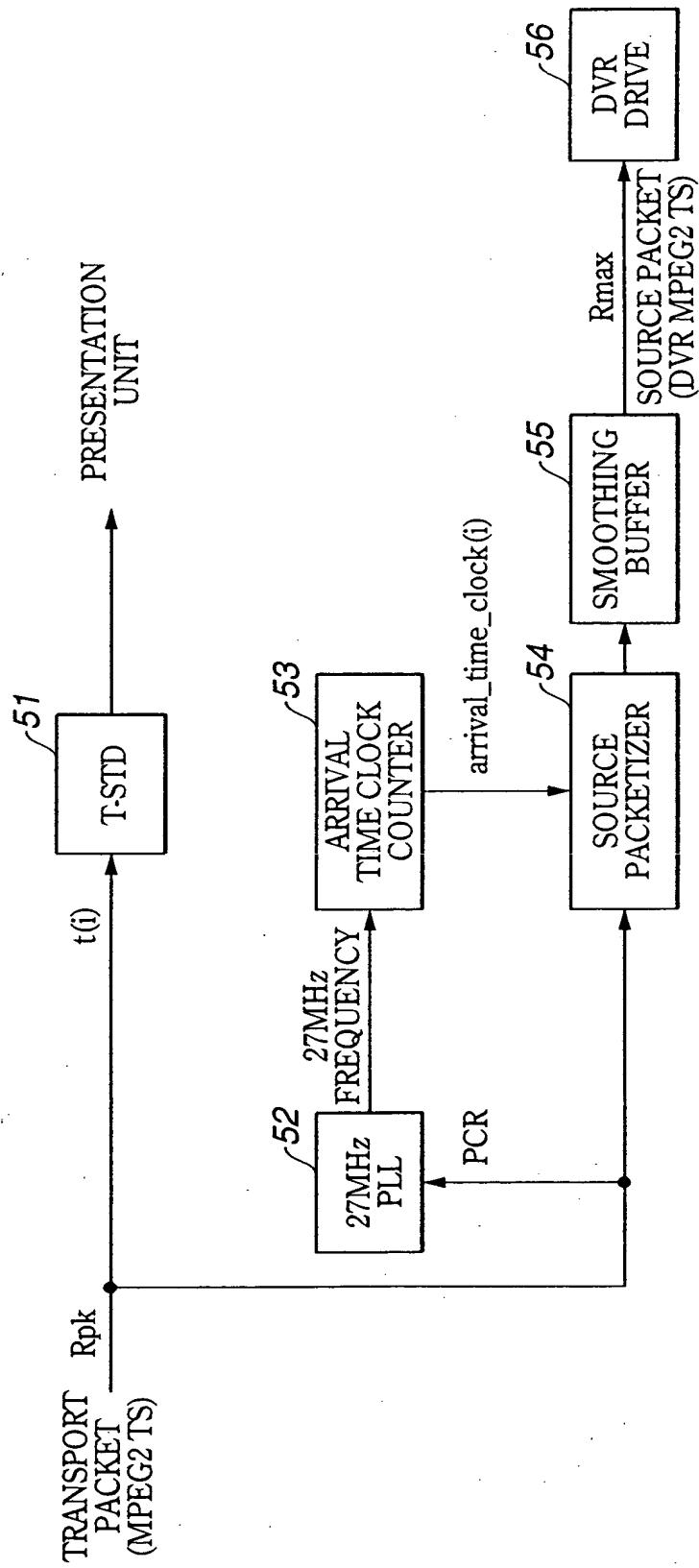


FIG.91

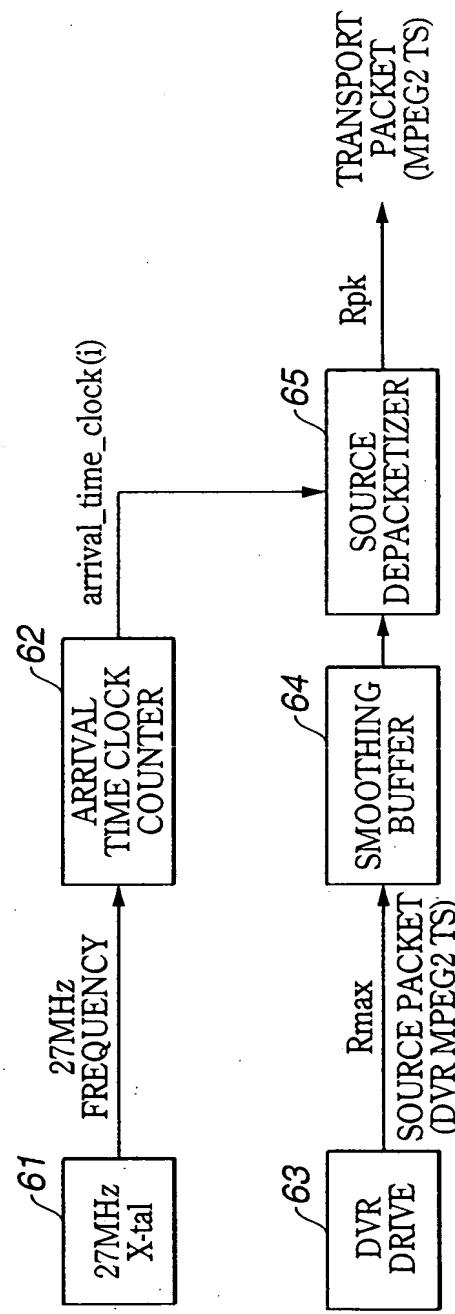


FIG.92

SYNTAX	NUMBER OF BYTES	ABBREVIATION
source_packet()		
TP_extra_header()		
trasport_packet()		
}		

FIG.93

SYNTAX	NUMBER OF BYTES	ABBREVIATION
TP_extra_header()		
copy_permission_indicator	2	uimsbf
arrival_time_stamp	30	uimsbf
}		

FIG.94

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copy_permission _indicator	MEANING
00	copy free
01	no more copy
10	copy once
11	copy prohibited

FIG.95

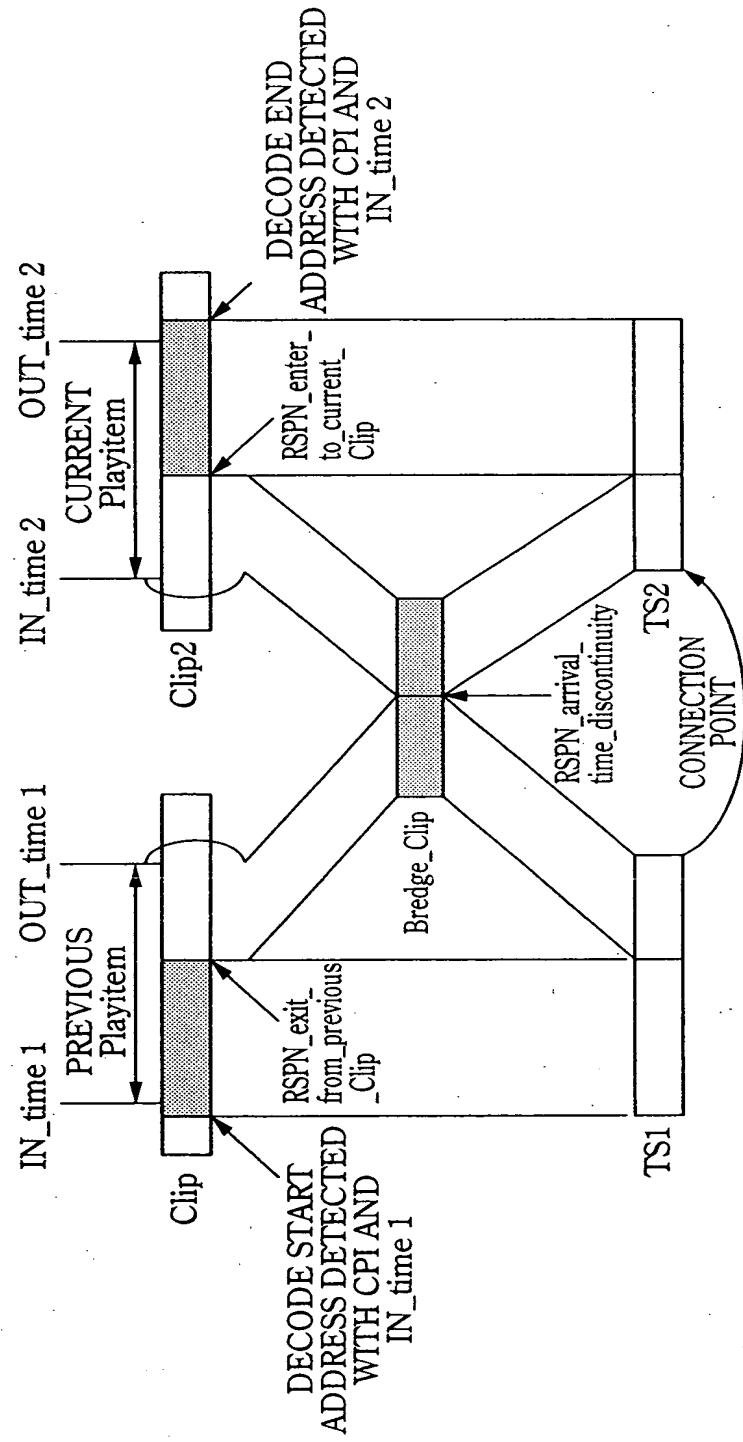


FIG.96

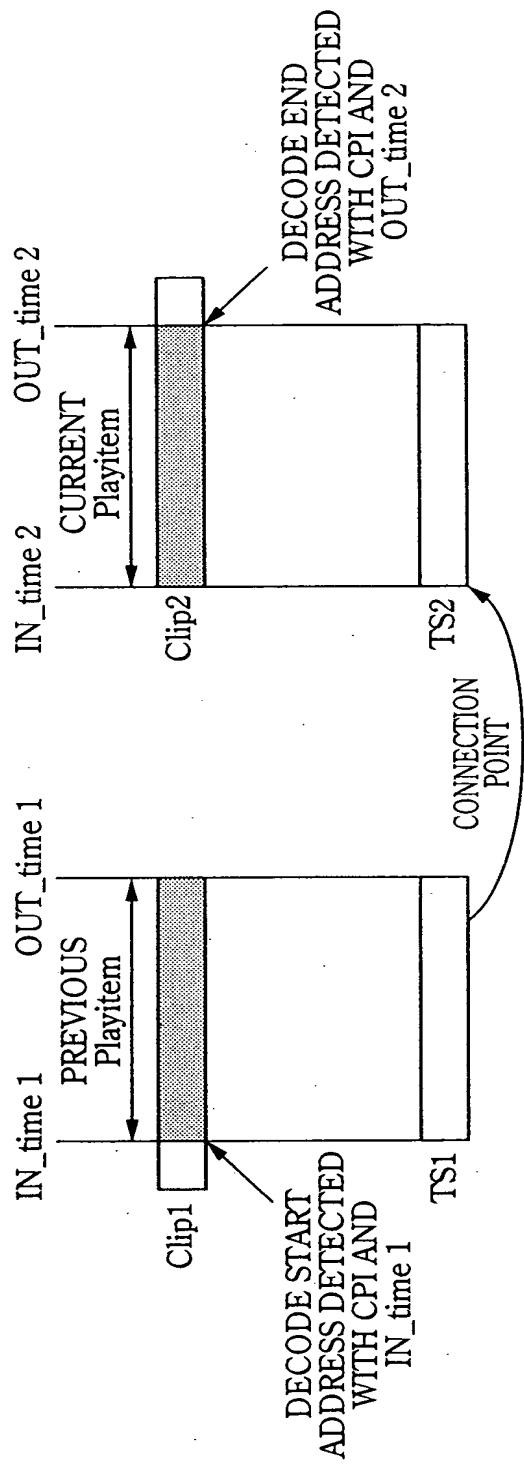


FIG.97

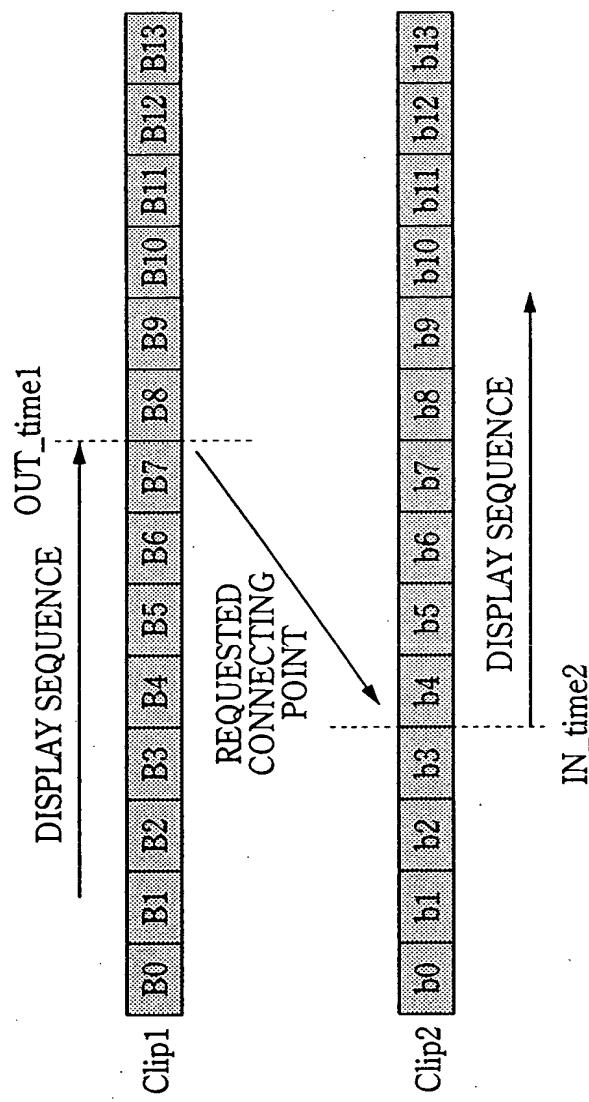


FIG.98

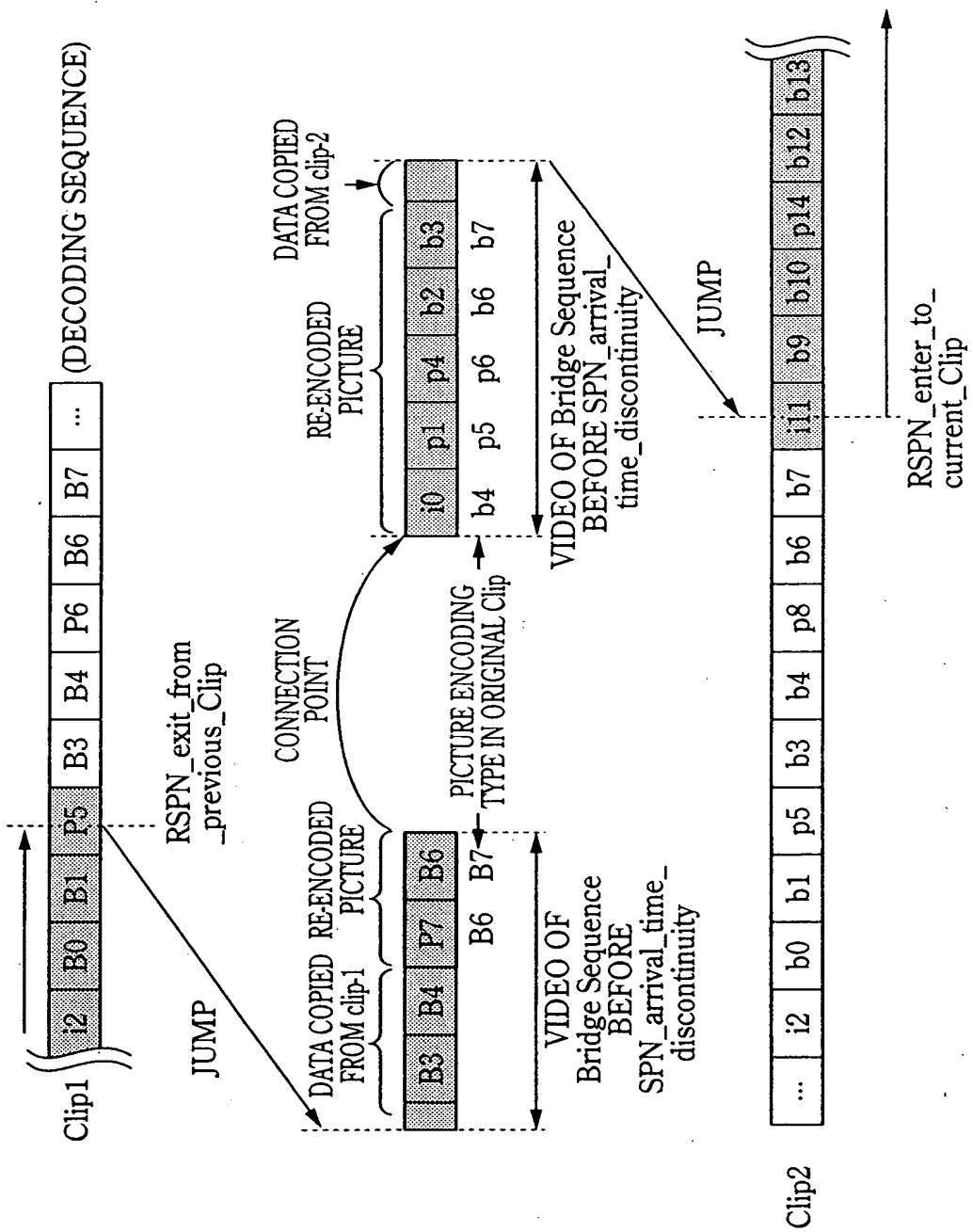
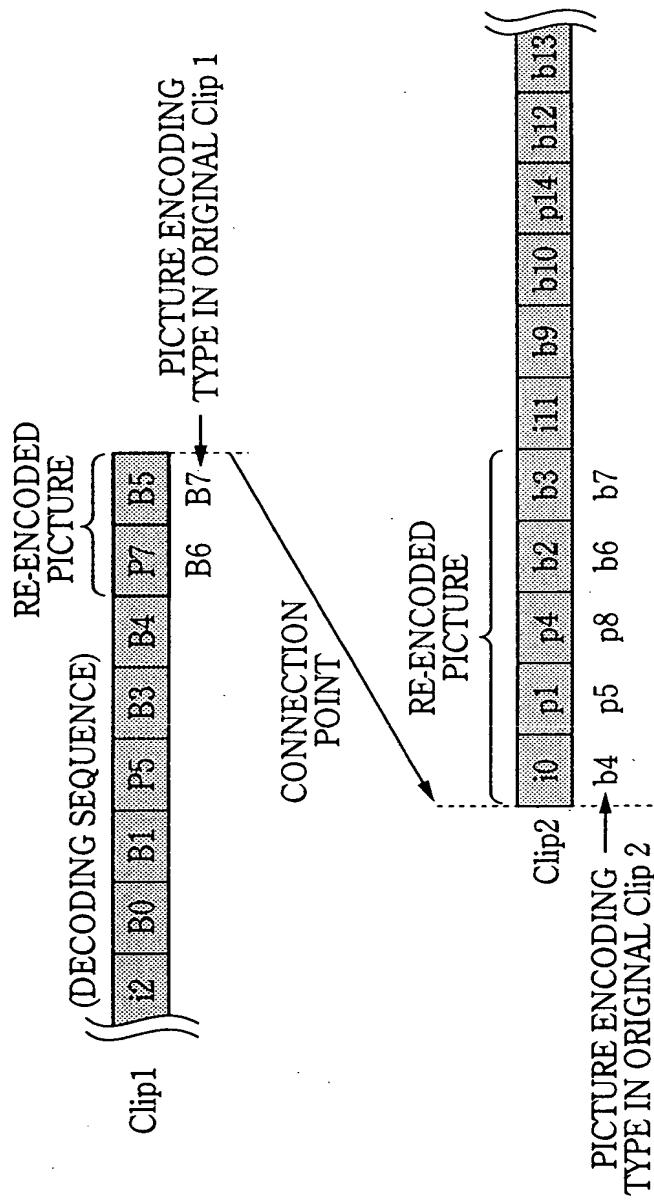


FIG.99

**FIG.100**

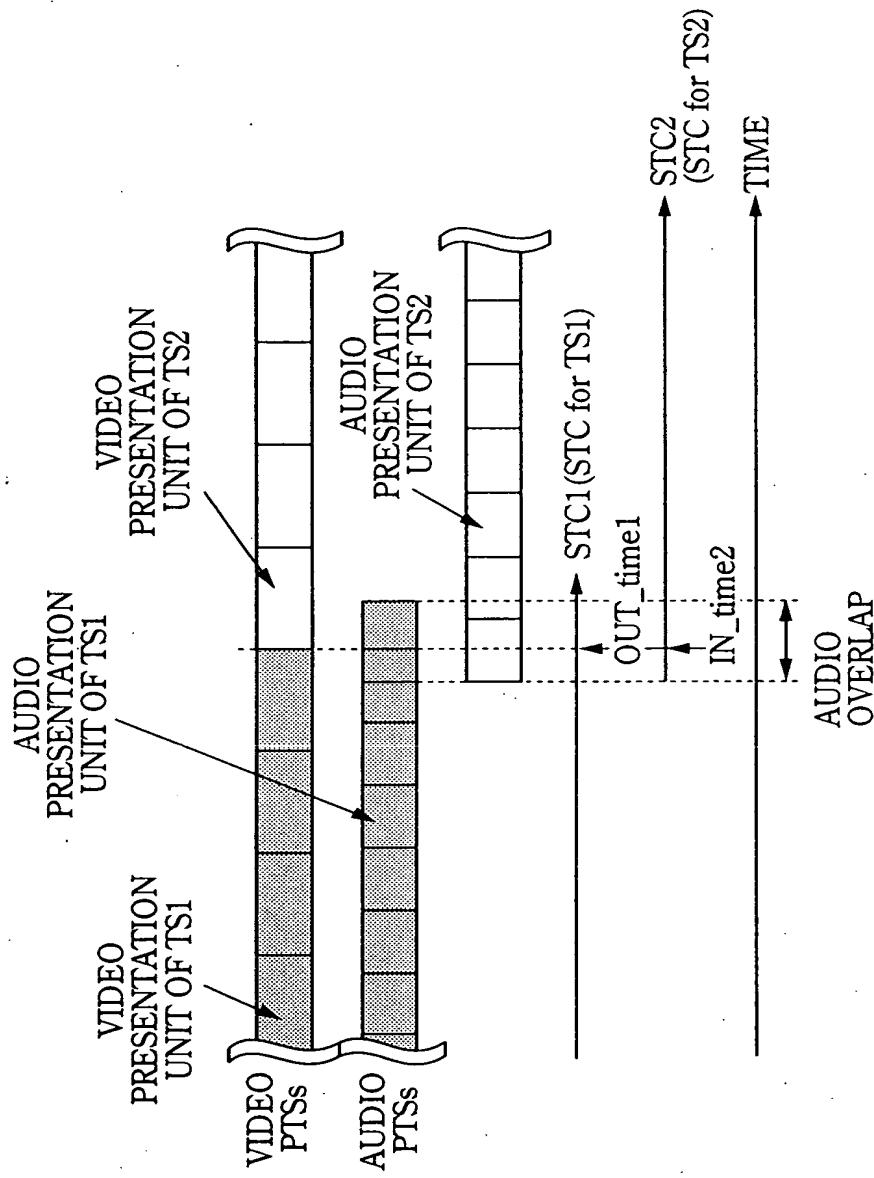


FIG.101

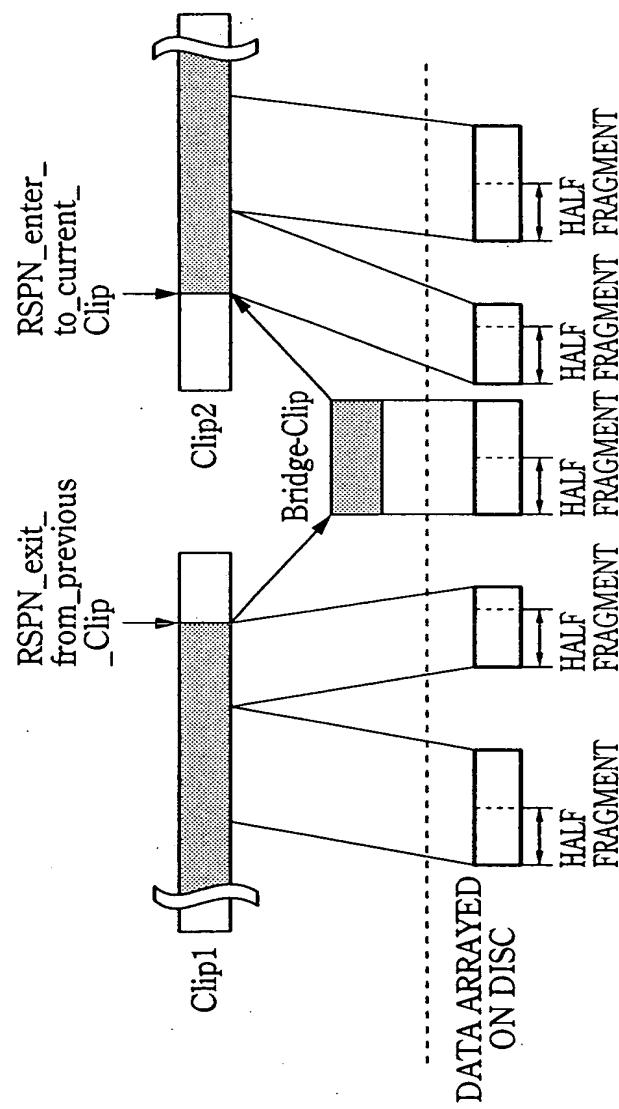


FIG.102

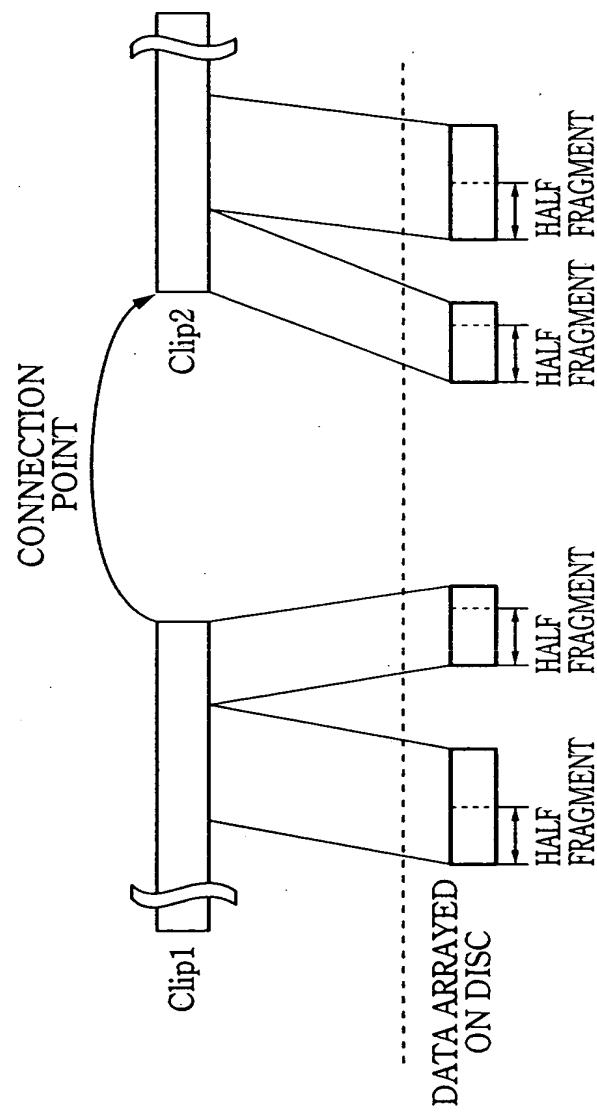


FIG.103

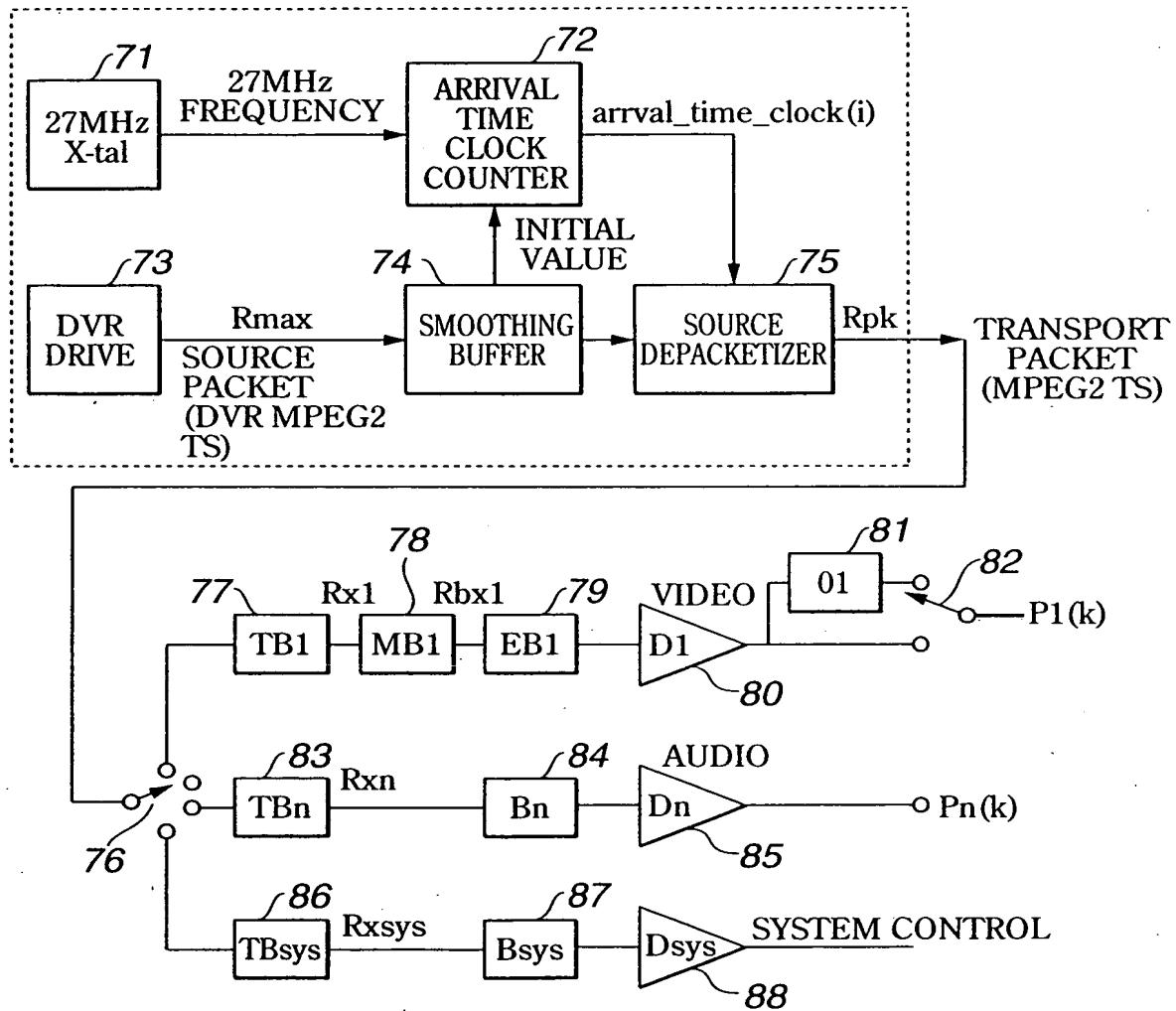


FIG.104

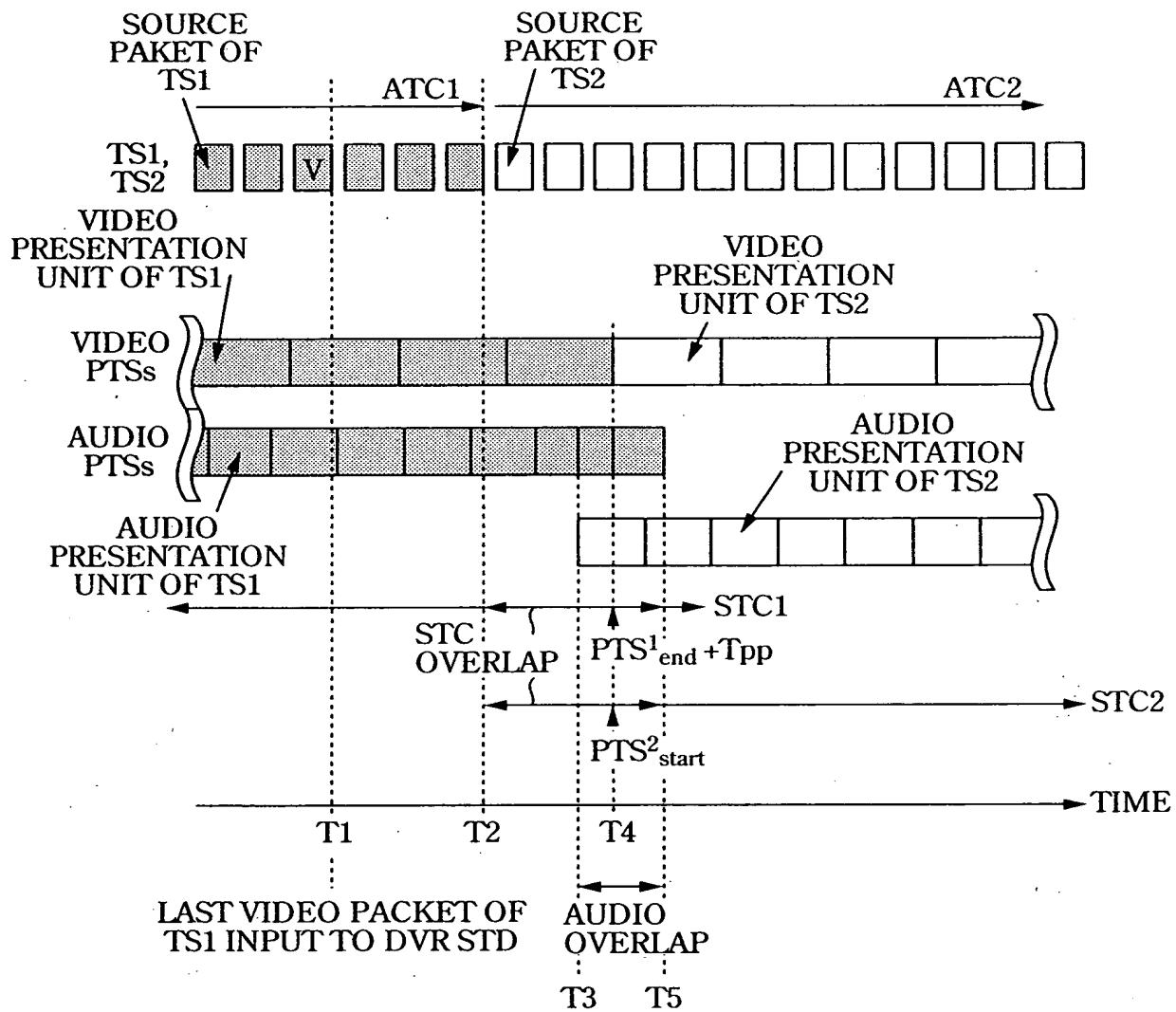


FIG.105

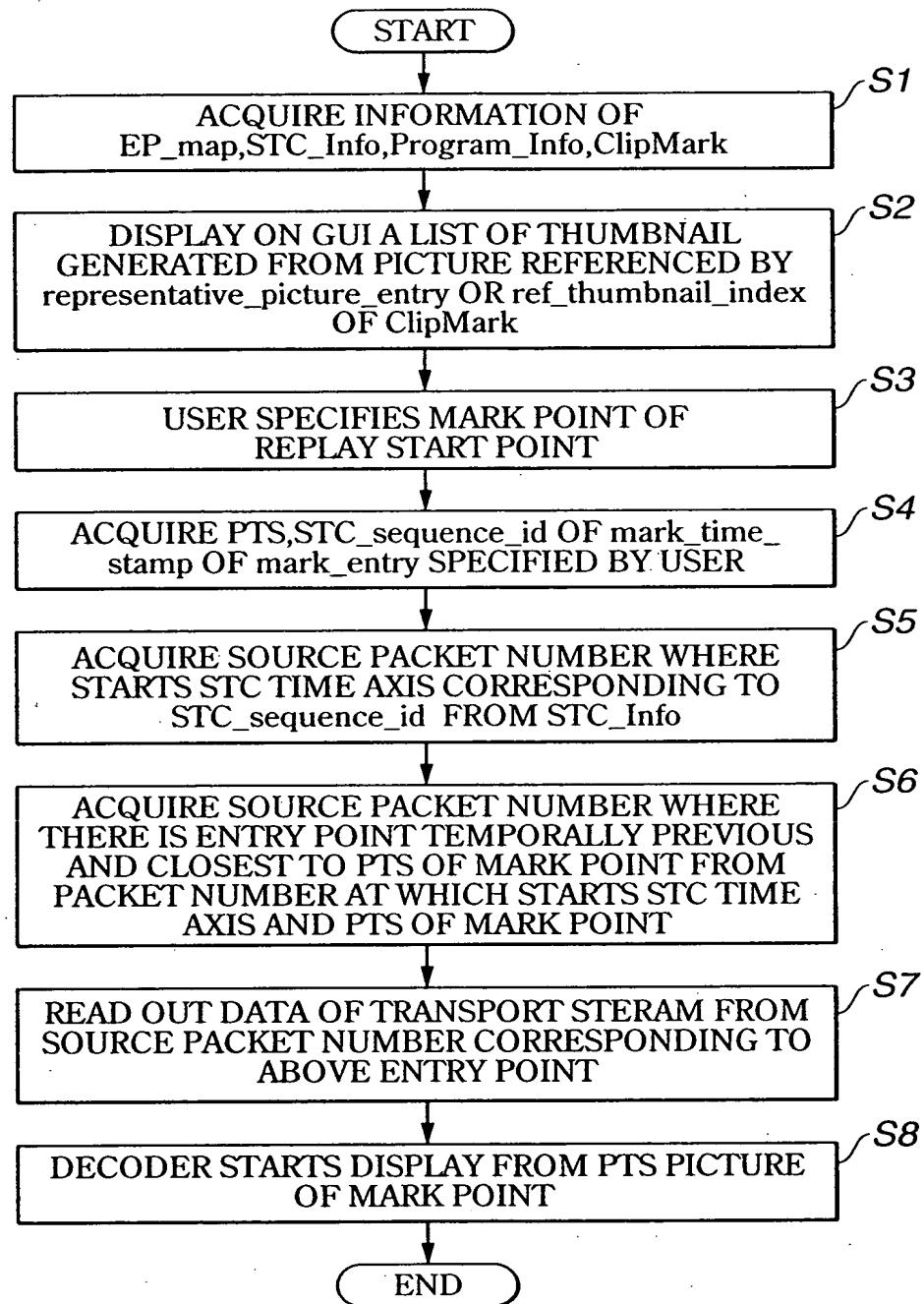


FIG.106

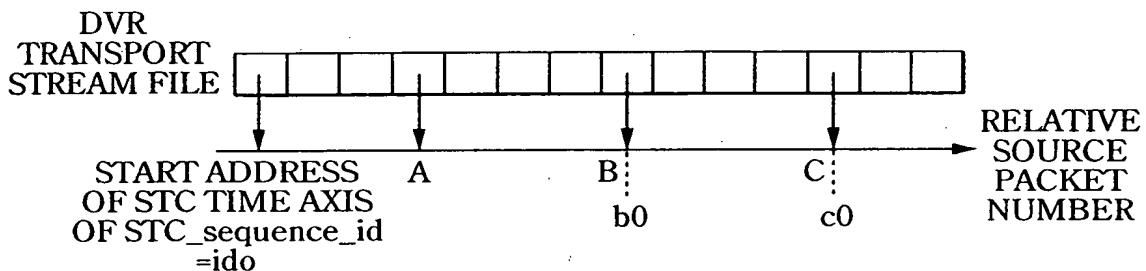


FIG.107

EP_map	
RSPN_EP_start	PTS_EP_start
...	...
A	PTS(A)
B	PTS(B)
C	PTS(C)
...	...

FIG.108

ClipMark

Mark_type	mark_entry		representative_picture_entry	
	Mark_Time_stamp	STC_sequence_id	Mark_Time_stamp	STC_sequence_id
...
0x92(scene start)	PTS(a1)	id0	PTS(a2)	id0
0x94(CM start)	PTS(b0)	id0	PTS(b0)	id0
0x95(CM end)	PTS(c0)	id0	PTS(c0)	id0
...

FIG.109

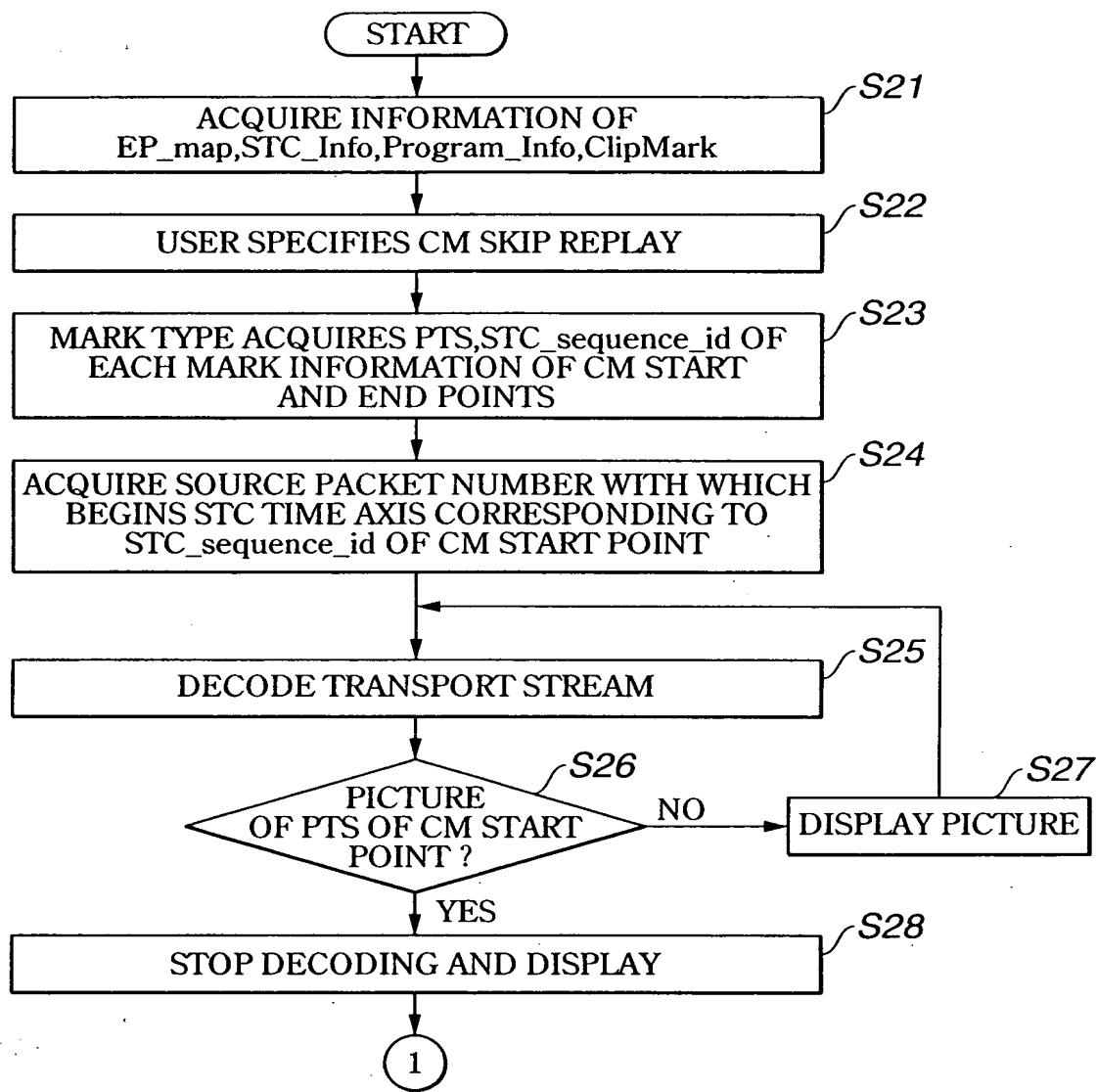


FIG.110

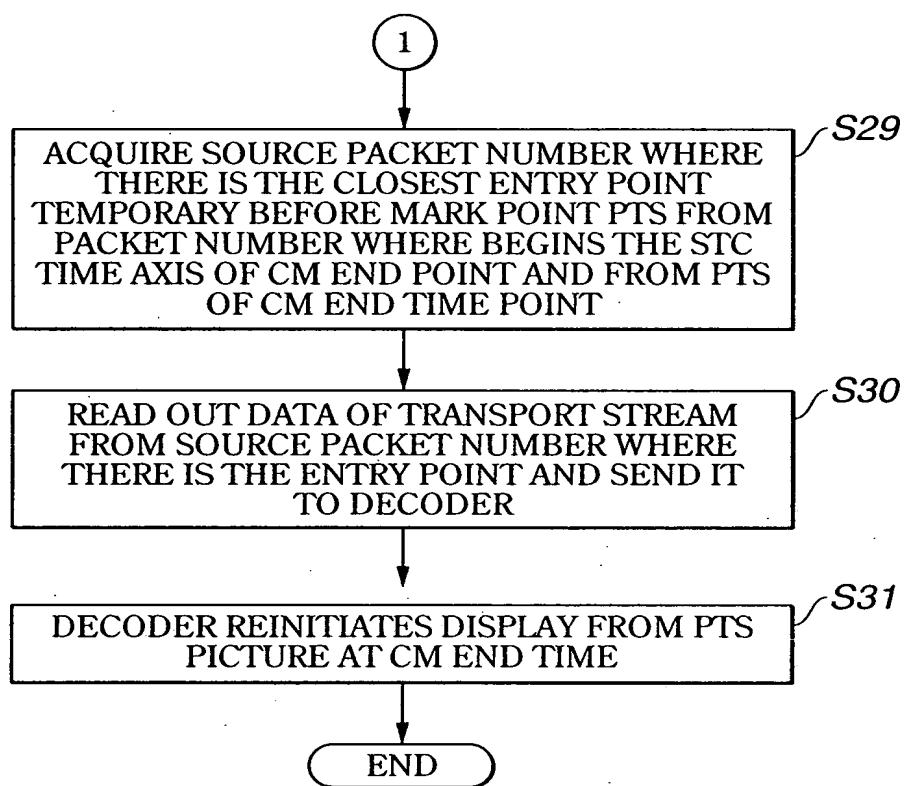


FIG.111

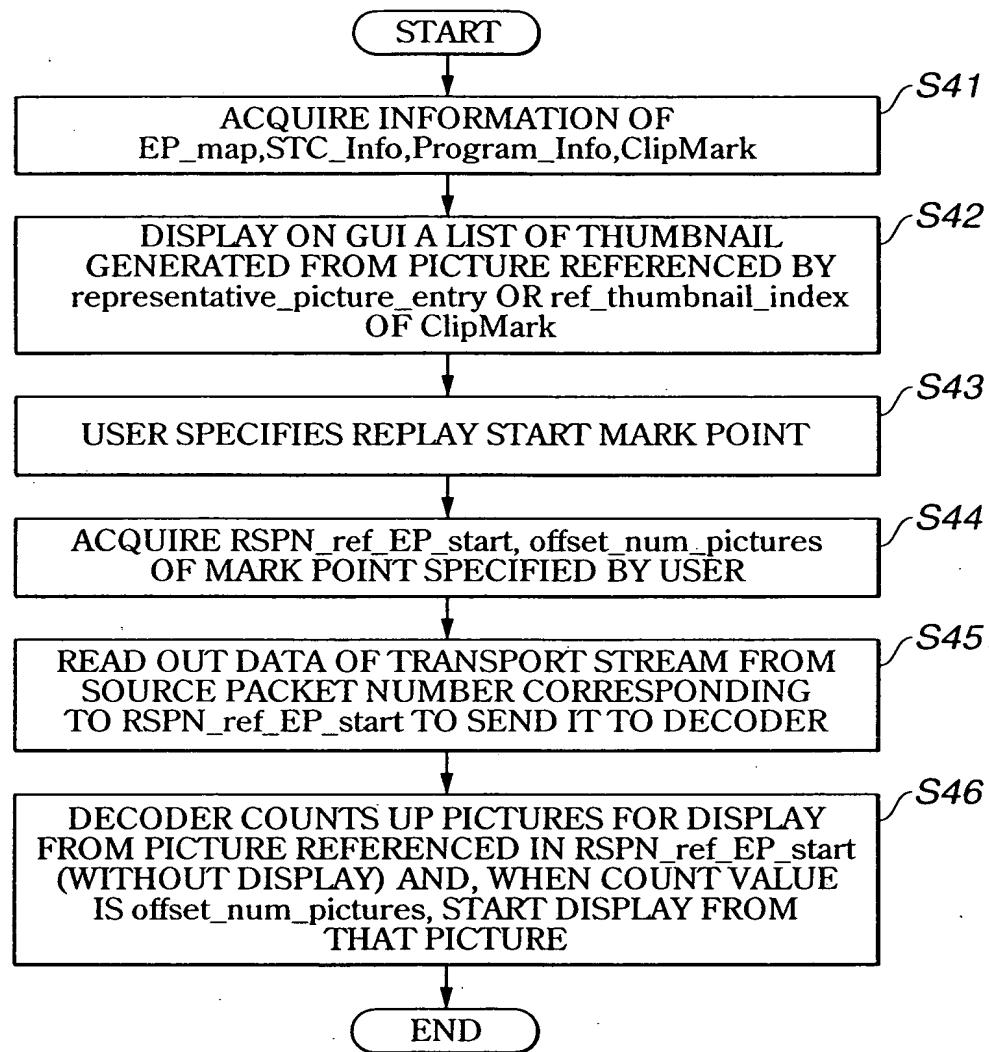


FIG.112

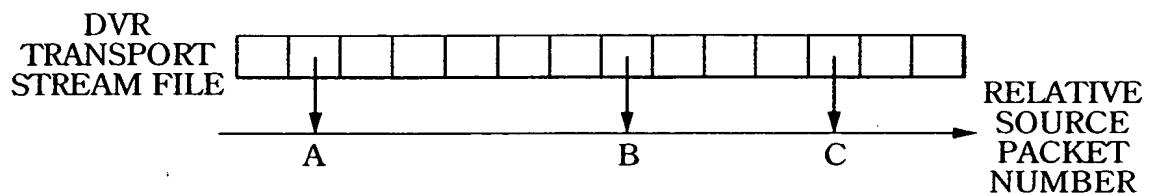


FIG.113

EP_map	
RSPN_EP_start	PTS_EP_start
...	...
A	PTS(A)
B	PTS(B)
C	PTS(C)
...	...

FIG.114

ClipMark

mark_type	mark_entry		representative_picture_entry	
	RSPN_ref_EP_start	offset_num_pictures	RSPN_ref_EP_start	offset_num_pictures
...
0x92(scene start)	A	M1	A	M2
0x94(CM start)	B	N1	B	N1
0x95(CM end)	C	N2	C	N2
...

FIG.115

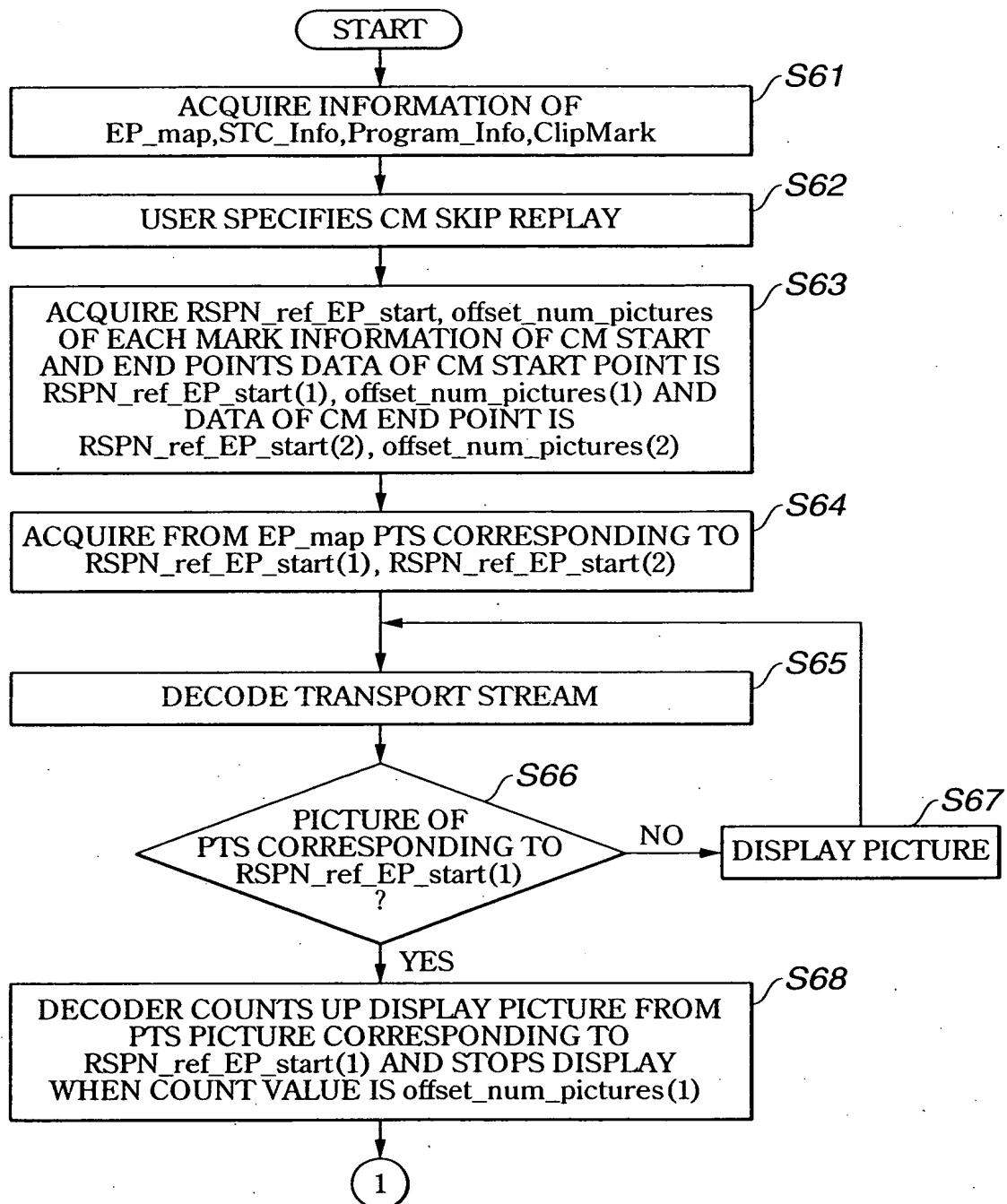


FIG.116

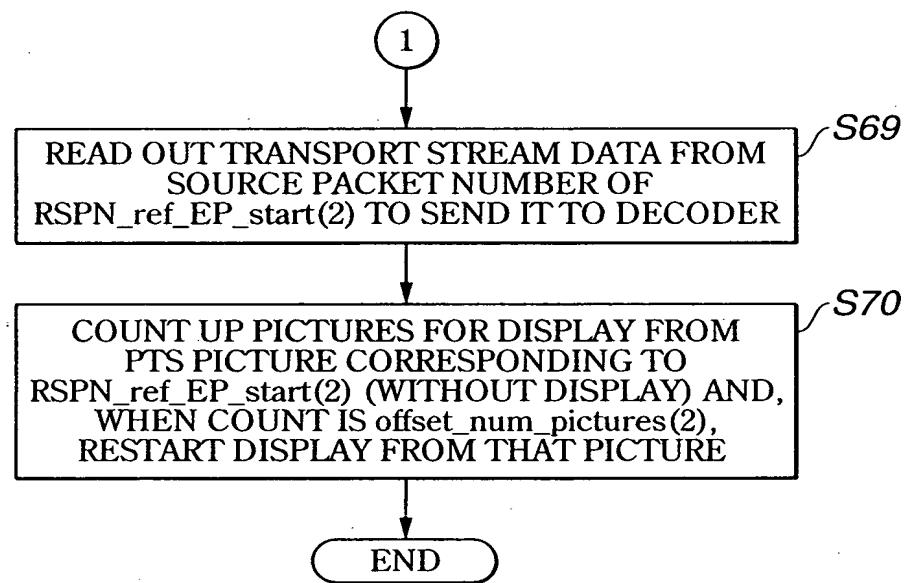


FIG.117

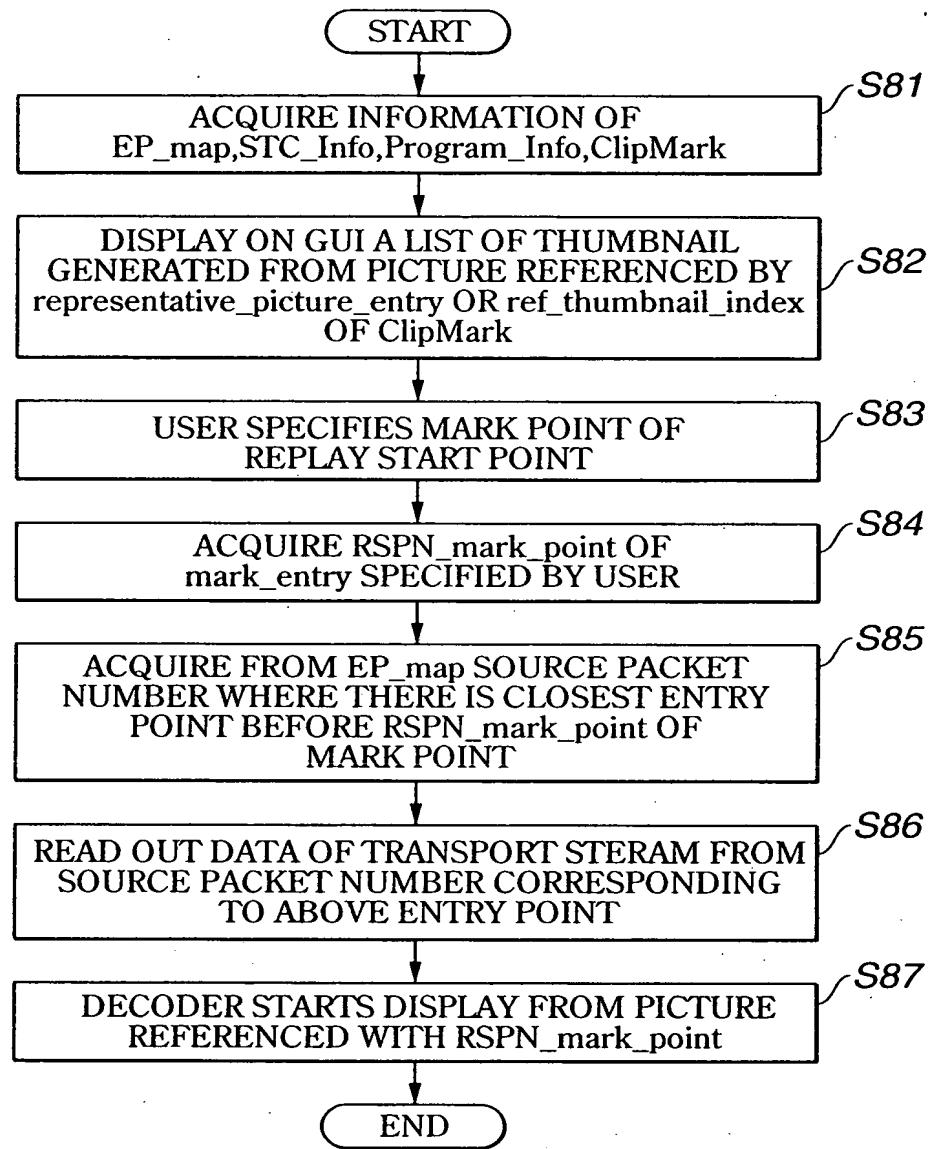


FIG.118

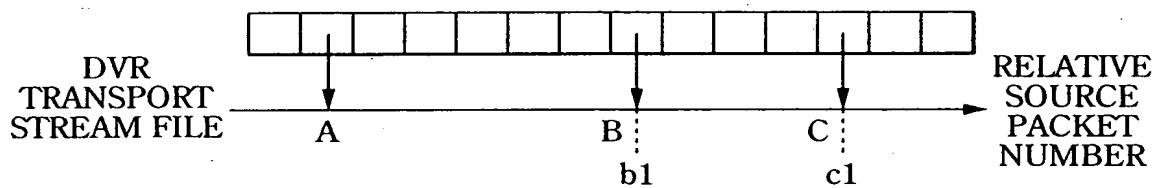


FIG.119

EP_map

RSPN_EP_start	PTS_EP_start
...	...
A	PTS(A)
B	PTS(B)
C	PTS(C)
...	...

FIG.120

ClipMark

mark_type	mark_entry	representative_picture_entry
	RSPN_mark_point	RSPN_mark_point
...
0x92(scene start)	a1	a2
0x94(CM start)	b1	b1
0x95(CM end)	c1	c1
...

FIG.121

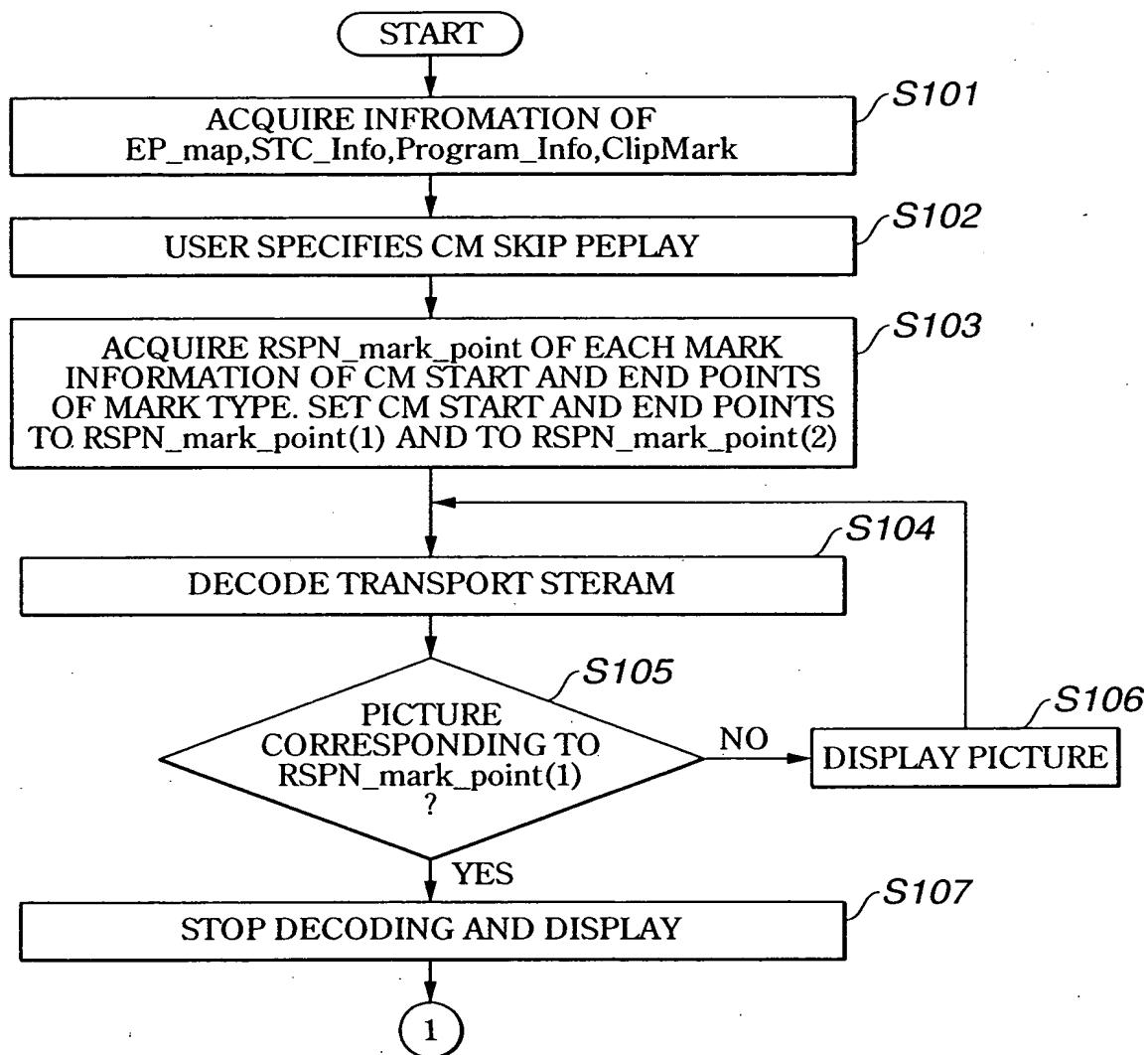


FIG.122

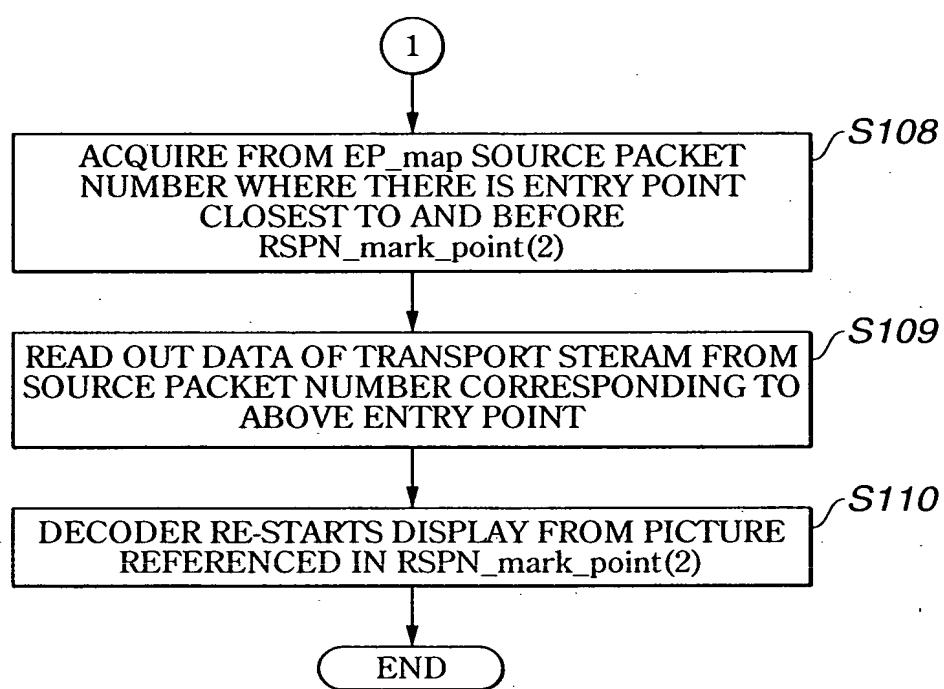


FIG.123

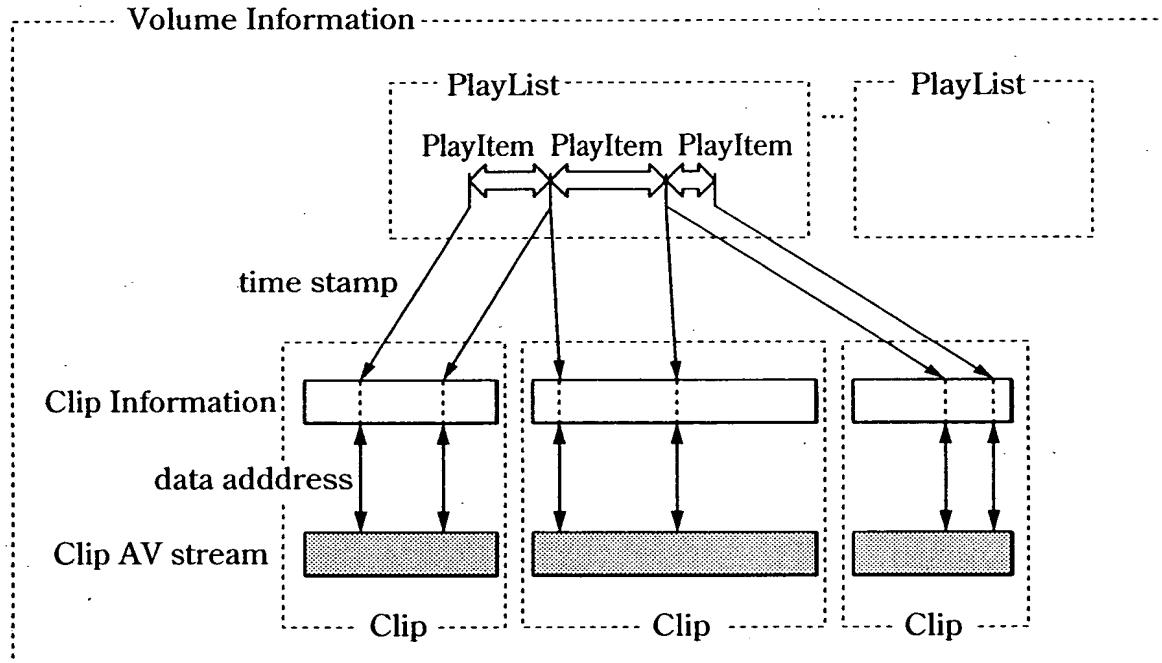


FIG.124

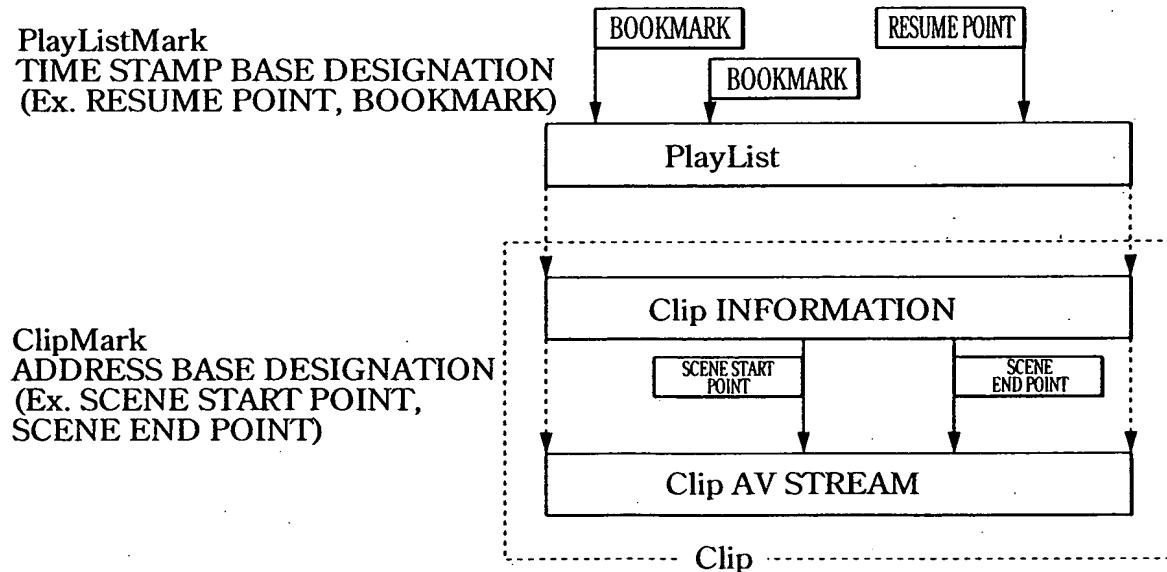


FIG.125

SYNTAX	NUMBER OF BYTES	ABBREVIATION
ClipMark0{		
version_number	8*4	bslbf
length	32	uimsbf
number_of_Clip_marks	16	uimsbf
for (i=0; i<number_of_Clip_marks; i++){		
reserved	8	bslbf
mark_type	8	bslbf
RSPN_mark	32	uimsbf
reserved	32	bslbf
ref_thumbnail_index	16	uimsbf
}		
}		

FIG.126

SYNTAX	NUMBER OF BYTES	ABBREVIATION
ClipMark0{		
version_number	8*4	bslbf
length	32	uimsbf
number_of_Clip_marks	16	uimsbf
for (i=0; i<number_of_Clip_marks; i++){		
reserved	8	bslbf
mark_type	8	bslbf
RSPN_ref_EP_start	32	uimsbf
offset_num_pictures	32	uimsbf
ref_thumbnail_index	16	uimsbf
}		
}		

FIG.127

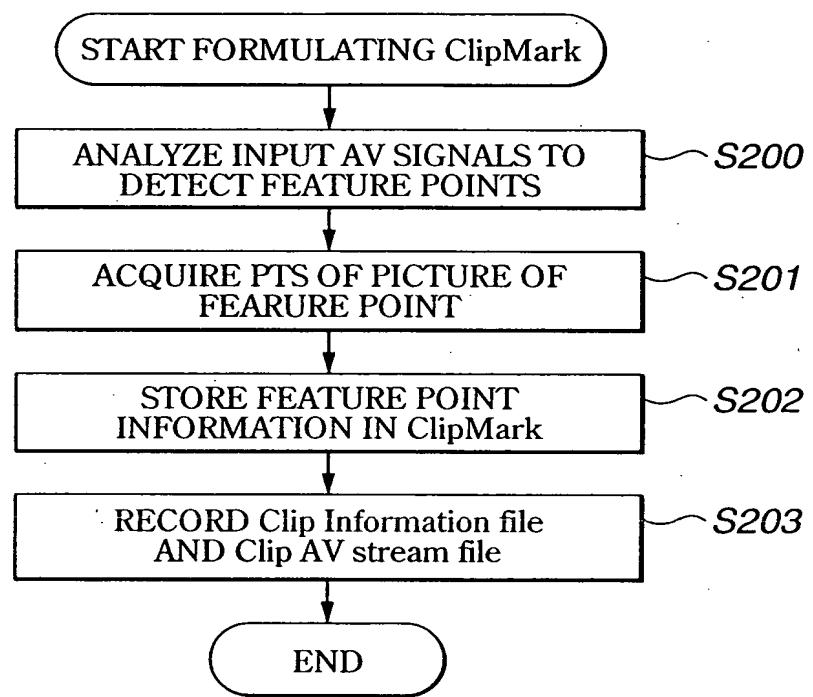


FIG.128

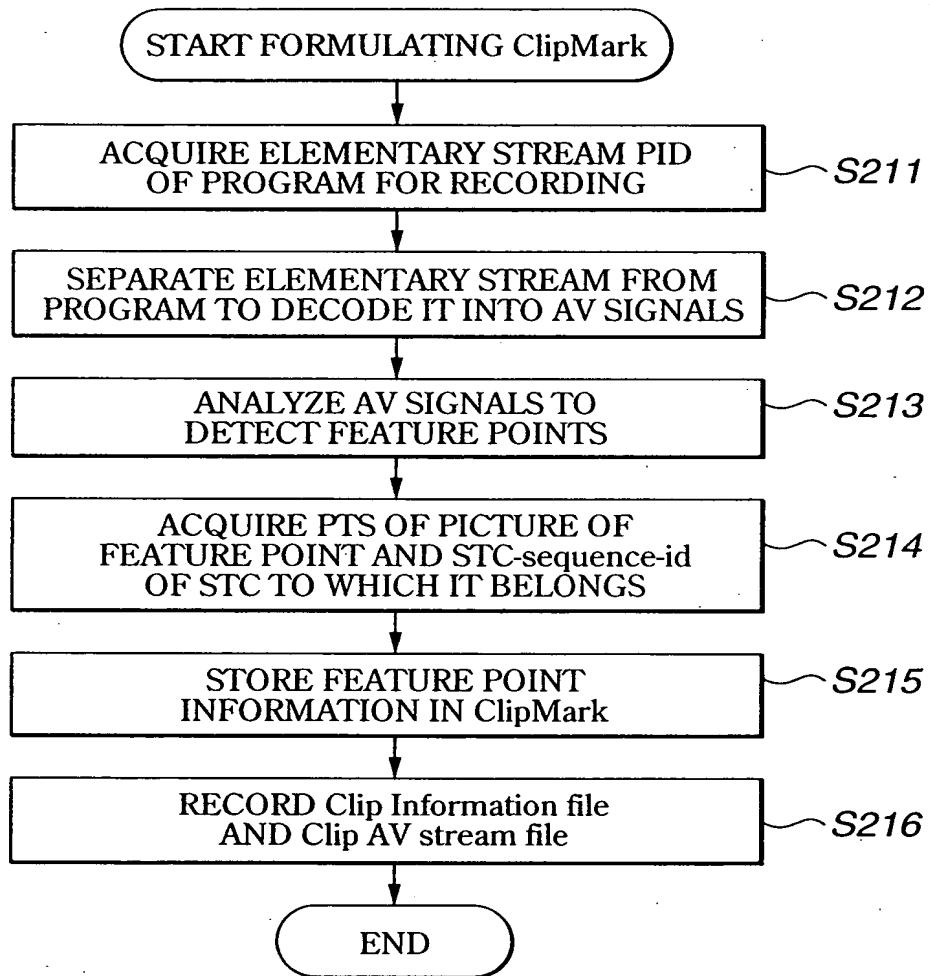


FIG.129

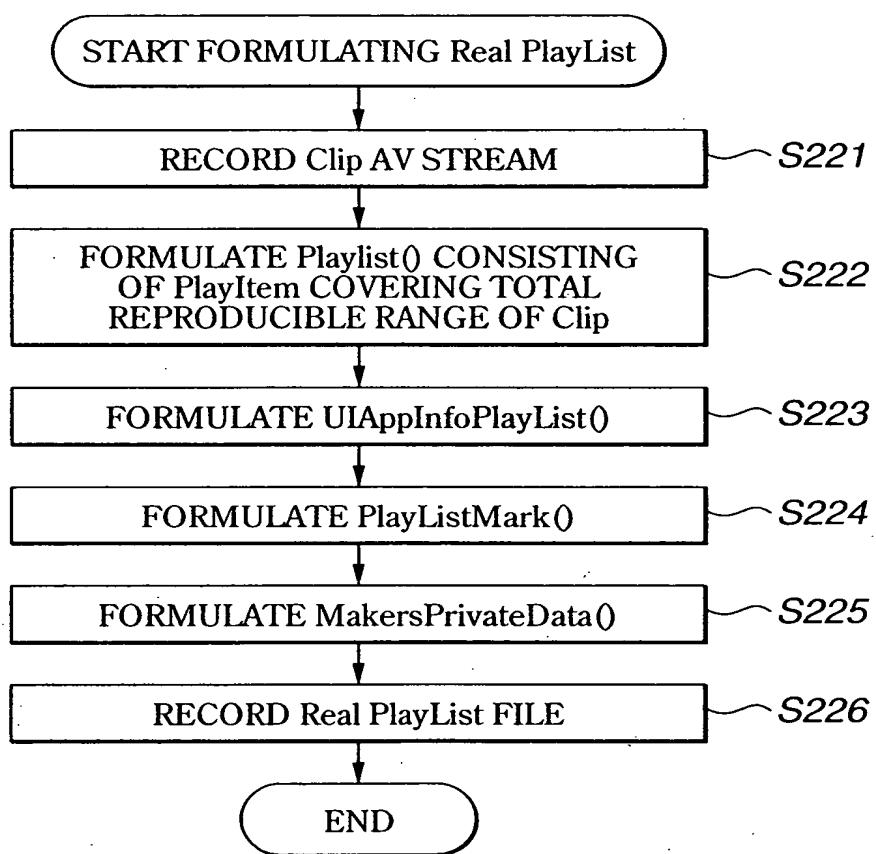


FIG.130

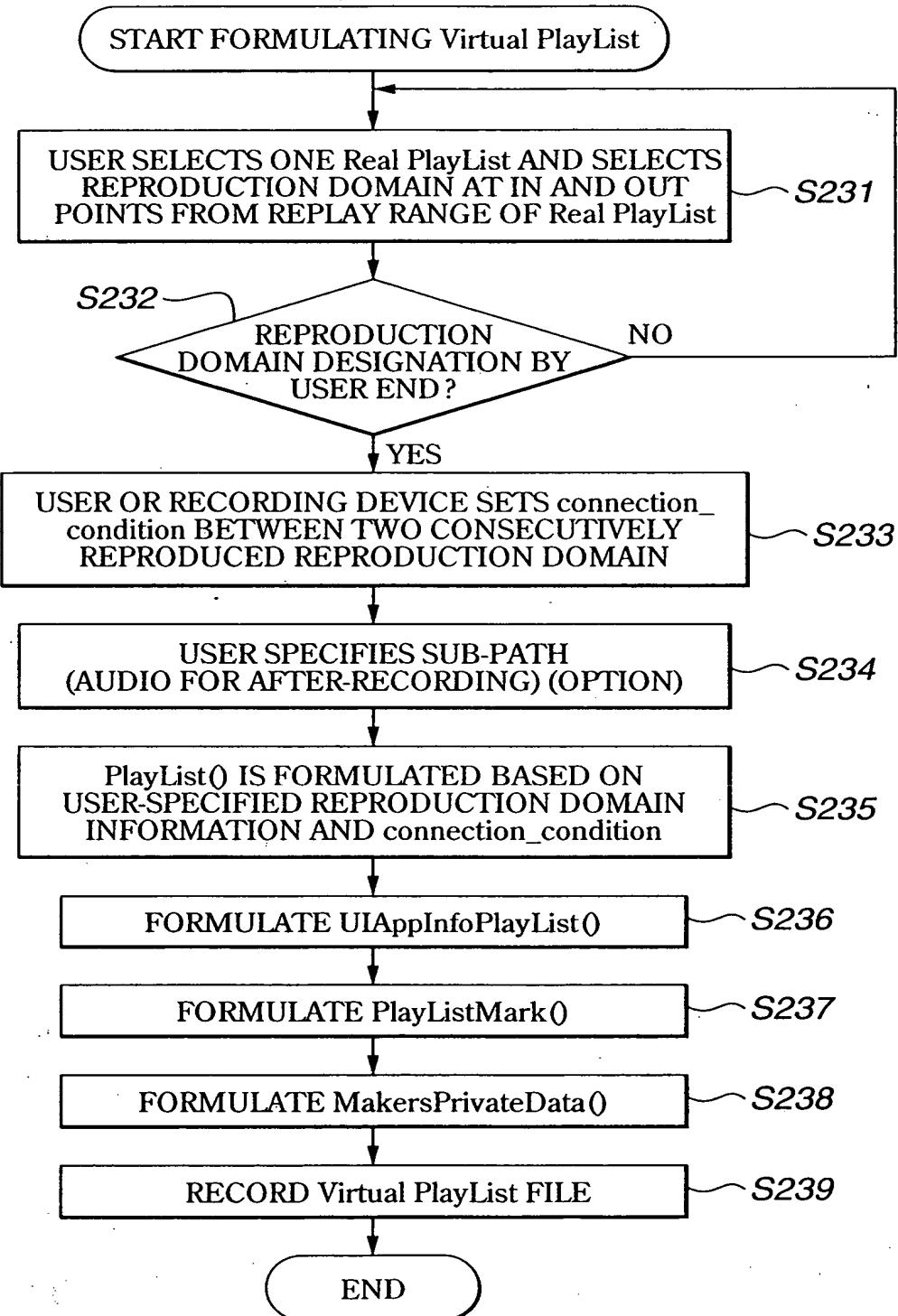


FIG.131

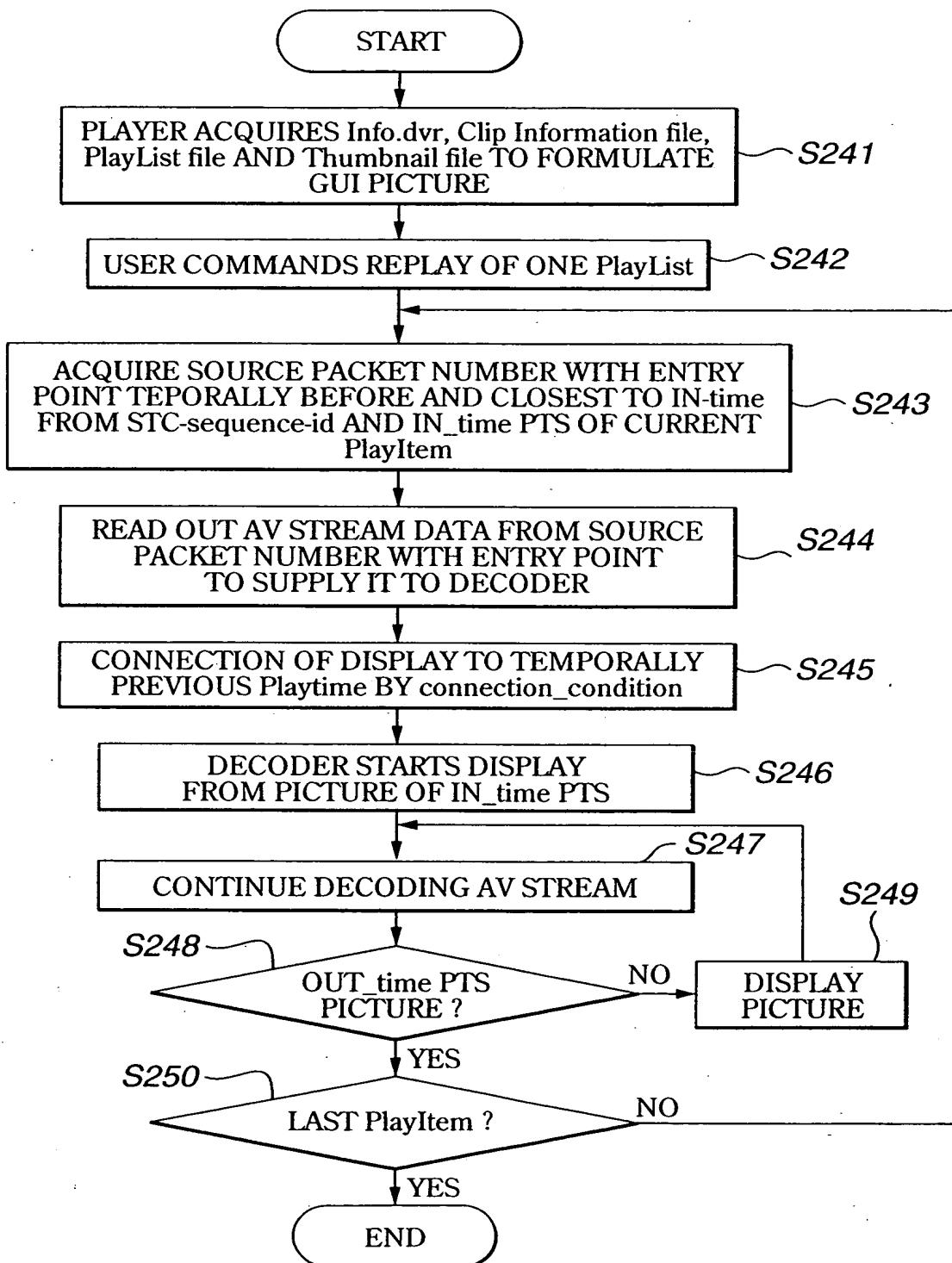


FIG.132

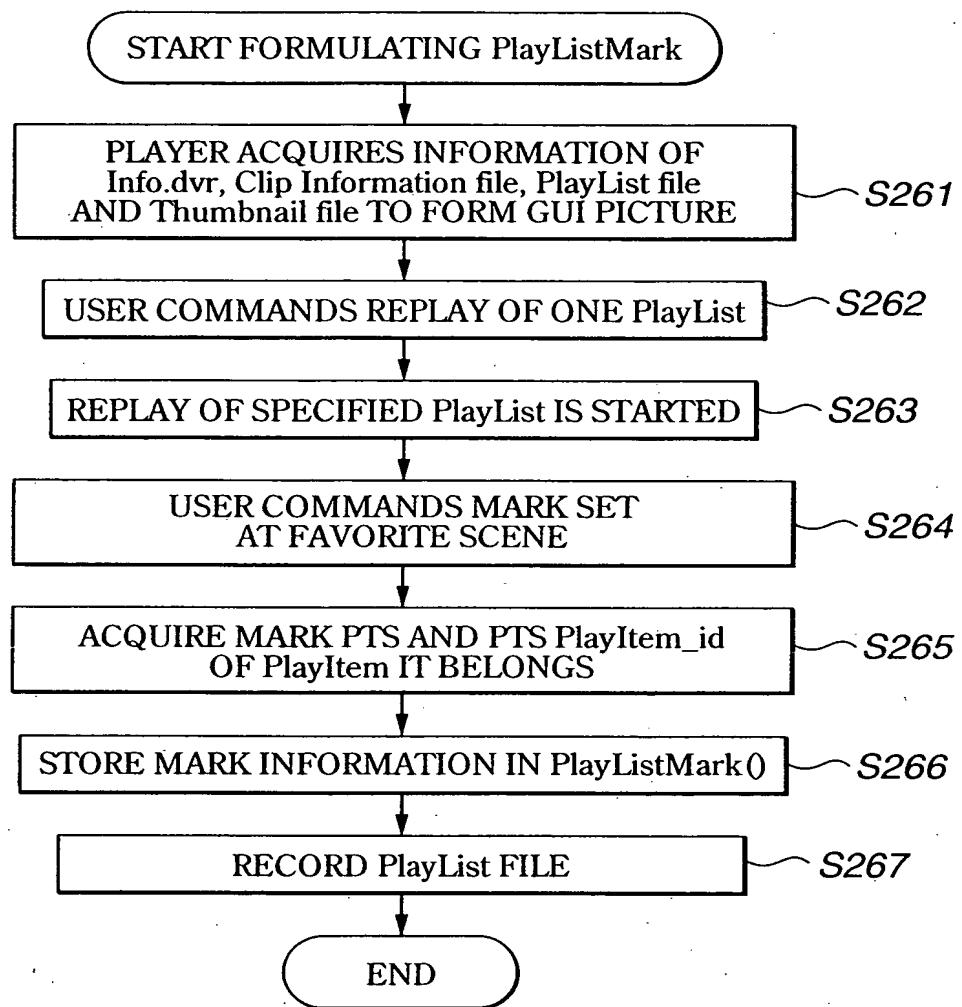


FIG.133

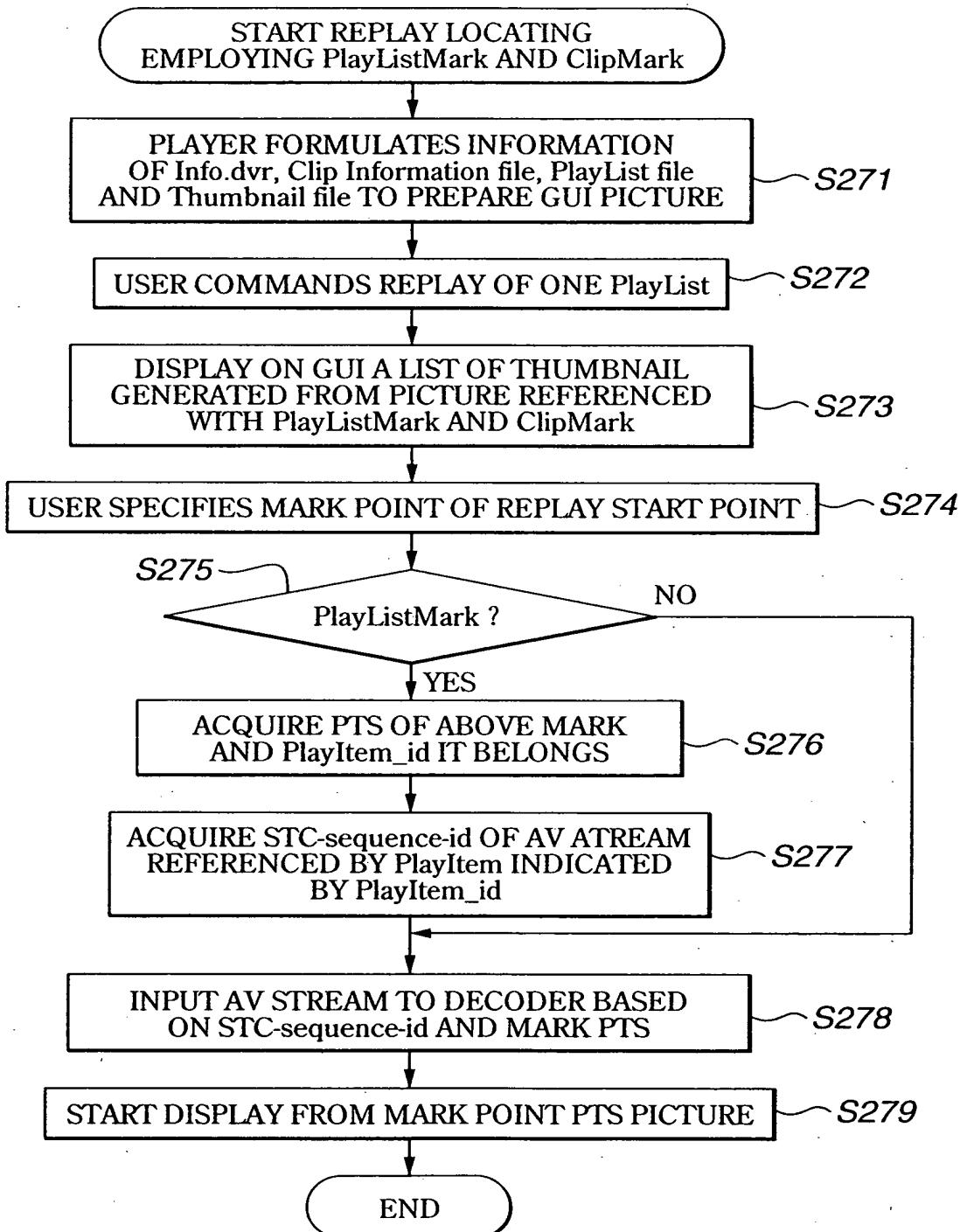


FIG.134

SYNTAX	NUMBER OF BYTES	ABBREVIATION
PlayListMark(){		
length	32	uimsbf
number_of_PlayList_marks	16	uimsbf
for (i=0;i<number_of_PlayList_marks;i++){		
mark_invalid_flag	1	uimsbf
mark_type	7	uimsbf
mark_name_length	8	uimsbf
ref_to_PlayItem_id	16	uimsbf
mark_time_stamp	32	uimsbf
entry_ES_PID	16	uimsbf
ref_to_thumbnail_index	16	uimsbf
mark_name	8*32	bslbf
}		
}		

FIG.135

VALUES	MEANING	NOTS
0x00	Resume-mark	REPLAY RESUME POINT. THE NUMBER OF REPLAY RESUME POINTS DEFINED IN PlayListMark0 MUST BE 0 OR 1.
0x01	Book-mark	REPLAY ENTRY POINT OF PlayList. THIS MARK CAN BE SET BY USER AND USED AS MARK FOR SPECIFYING START POINT OF FAVORITE SCENE. A PLURAL NUMBER OF THIS MARK MAY BE PROVIDED IN PlayListMark0.
0x02	Chapter-mark	USER INTENDS THAT A CHAPTER IN PlayList BEGINS WITH THIS MARK. A PLURAL NUMBER OF THIS MARK MAY BE PROVIDED IN PlayListMARK0.
0x03	Skip-start-mark	IF ONE Skip-start-mark IS SET IN PlayListMark, ONE Skip-end-mark MUST BE SET DIRECTLY AFTER THE Skip-start-mark ENTRY. USER
0x04	Skip-end-mark	INTENDS TO SKIP PlayList REPLAY FROM TIME STAMP OF Skip-start-mark TO TIME STAMP OF Skip-end-mark. Skip-start-mark HAS SAME MEANING AS Skip-end-mark. IF entry-ES-PID IS NOT 0xFFFF, Skip-start-mark HAS SAME entry-ES-PID VALUE AS Skip-end-mark. THIS MARK CAN BE SET BY USER. THERE MAY BE PLURAL SUCH MARKS IN PlayListMark0.
0x05- 0x3F	Reserved for future use	Reserved for PlayListMark
0x40- 0x7F	Reserved for ClipMark	

FIG.136

SYNTAX	NUMBER OF BYTES	ABBREVIATION
ClipMark()		
length	32	uimsbf
maker_ID	16	uimsbf
number_of_Clip_marks	16	uimsbf
for (i=0; i<number_of_Clip_marks; i++) {		
mark_invalid_flag	1	uimsbf
mark_type	7	uimsbf
ref_to_STC_id	8	uimsbf
mark_time_stamp	32	uimsbf
entry_ES_PID	16	uimsbf
ref_to_thumbnail_index	16	uimsbf
representative_picture_time_stamp	32	uimsbf
}		
}		

FIG.137

Mark_type	MEANING	NOTES
0x00-0x3F	reserved for future use	Reserved for PlayListMark
0x40	Scene-start-mark	MARK POINT INDICATING SCENE START POINT
0x41-0x5F	Reserved for common ClipMark	
0x60-0x7F	Maker defined ClipMark	MAKER SPECIFIED WITH maker_ID CAN FREELY DEFINE MEANING

FIG.138

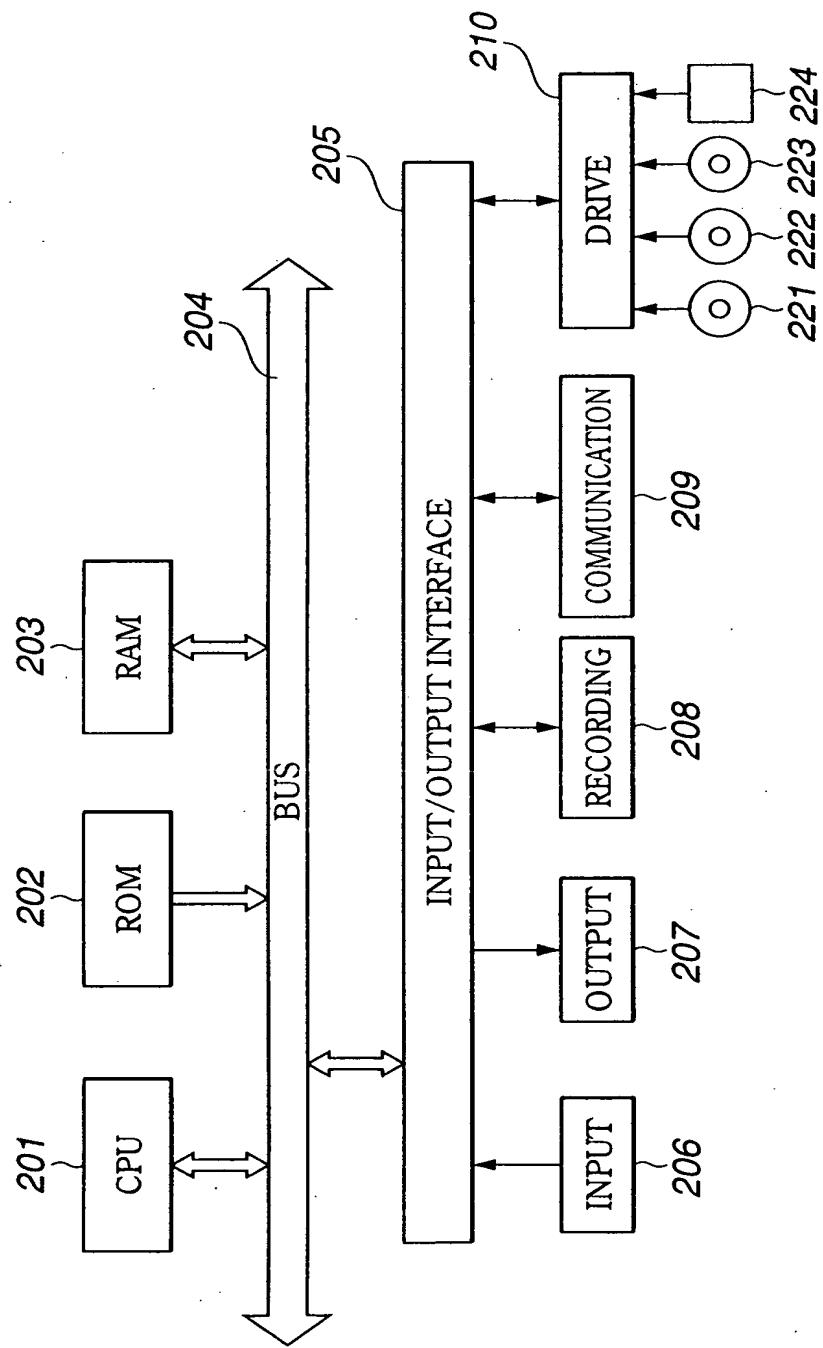


FIG. 139